The Builder.

VOL. XIV.—No. 725.

SOME considerable portion of the space in the galleries appropriated to the Architectural Exhibition is occupied by drawings which had been sent in competition for the Liverpool Free Library and Museum, the Rotherham Grammar School, the Cathedral at Lille, the Middlesex Industrial Schools, and other minor works. The exhibition of such designs especially has a beneficial tendency, which is independent of the desired influence towards reformation in the system of selection by committees. On the advantage from comparison of different designs for the same building, we were induced to dwell particularly, at the time of the Barracks' Competition, under the idea that such exhibitions were hardly estimated as they should be by the profession,—although really they allow the opportunity of the only gain which a general body of competitors can anticipate. A similar advantage offered by the Architectural Exhibition collectively, is now derived more readily than last year,—the hanging having been carefully attended to so far as regards the placing together of drawings belonging to the same design,—omissions in which particular, last year, had induced some of our correspondents to prefer complaints. Drawings illustrating the same subject are placed next one another as much as possible.

There are fewer numbers in the catalogue this year,—the deficiency being in the photographs; but, several works are often placed under the same number,—so that, on the whole, if the exhibition shows a smaller number of meritorious executed buildings, the sum of interest to the visitor is not greatly deficient. The present gallery, we ought to say, is not only unsightly, but absolutely unfitted for the proper examination of architectural drawings: the want of the required abundant light is painfully obvious; and architecture hardly could be striving under greater gloom or disadvantage, than that under which it labours in Suffolk-street, during these short winter days. The present arrangement causes, not merely a reduction of the number of visitors,—it is in some degree actively injurious,—as it *deadens* the effect of the art upon the section of the public visiting the gallery. We would not make our notice a summary of grievances: it is desirable, however, to observe, that for the future, errors of all kinds in the catalogue should be prevented. Some of these originate with the exhibitors perhaps; but an equal number are due to the ordinary reading for the press. And the names of the same exhibitors should be printed precisely alike throughout the catalogue; whilst in the department for materials, &c. it should more distinctly appear that all encomiums are those of the *exhibitors*. It would be desirable, besides the cost of executed designs, that the architects should add the dates of commencement and completion,—and a small plan should be appended to every view.

To the examples quoted in our last, of buildings which should have been illustrated, we might add some works of a different class,—as several recently-erected bridges; the Holyhead Harbour Works; the Liverpool Landing-stage; the Victoria Docks, Plaistow-marshes; and even the various works and projects connected with sanitary improvement, and the supply of water to towns, and with the London streets, parks, and river embankment, as also the various plans for the sewerage of London, and the works in operation at Leicester. In the present interest of the subject of bridge-foundations, so often referred to in our pages, we could have wished to see some collective representation of different methods in use. We refer to the latter subject because it will instance what might occupy some portion of the time of the junior members of the Architectural Association, profitably to themselves and others. Would it not further the instruction in the classes of the Association, to require from the students, drawings in one sheet of all different methods used for the same objects in construction?

No. 1 in the Exhibition is a "Composition of Buildings lately erected at Manchester," by Mr. E. Walters, including warehouses and a church in red brick and stone, all in the Italian style, and a portion of the Free-trade Hall, which building is shown in another drawing (14), from which our engraving was taken. Mr. Walters also exhibits a drawing (105) of "Warehouses; Marsden-street, Manchester." These works all serve to illustrate Mr. Walters's invention in details and his skill in the grouping of windows and stories, which have been exemplified in so many buildings in Manchester. Mr. D. Brandon exhibits (2) "North-west View of the Manor House erected at Aylesbury, Bucks," a building of red brick and stone in the late Tudor style of architecture, and (428) a "Sketch for Westhumble Lodge."

Nos. 5 and 6, without titles in the catalogue, are apparently designs for Congregational Chapels. One is Italian and the other Gothic. Regarding them as two designs for the same building, they exemplify the relative positions of the styles with reference to ecclesiastical architecture and general expression of *art*. Waiving the question of the special advantage of either style, we observe that it is seldom that we get any fair comparison between what can be done in one case and the other. A common-place portico, or some of the worst features of the later and degenerate Italian, may be adopted when the building happens to be church or chapel,—though, in buildings of a different class quite enough has been done to show that the scope of the classical styles is not bounded by any bad precedent. One style presents itself as suited to one class of buildings, and another style to the other class,—not altogether because there is any special fitness of mere style for either class, but it would seem, because of the accidental circumstance that exclusive attention is paid by certain architects to one class of buildings, and that equal ability can seldom be shown in two different styles. There is scarcely any creditable modern application of the Gothic style to street architecture; and there is no very high merit in recent designs in the Italian style for churches or chapels: one or the other of such applications of a universal style should be possible, if opinions which have been heard are correct,—but until either of the courses is taken with effect, the question of the value of mere style remains with only half the required basis for an opinion. The probability, however, may be, that there is no ground for the exclusive claim as to scope and adaptability of style, put forth either by one side or the other. Either of the styles chiefly in favour, if it could be generally adopted, would probably afford equal scope for *art*, and the reason why such general adoption is not made, must, we think, be sought not in what is within the ability of architects with their materials, but in the general prepossession of the public—with whom mere style seems to occupy a ground, and exert an influence which has, in some measure, been left out of consideration in the recent discussion upon the question of *art*. The tendency of that discussion was towards the common ground of agreement that the requirements of the time, and new art, together must be recognised or expressed in our new buildings: but whilst all could agree as to that aim, there were still the actual differences of style which were left, to be accounted for,—and which differences, had there been perfect agreement, should not have been possible,—as no doubt they would have been found had either of the disputants been called on to express his views in practical building work. There is some element in the difference of *styles* which must hitherto have escaped observation, and distinct from the generally recognised principles of art; and if our view expressed heretofore, be correct,—that mere style produces a more striking impression upon the public than *art* does,—it would follow that changes of style and prevalence of several different styles, should be discountenanced by architects, since both the effort and the result which should be concentrated in *art*, are deteriorated.

The designs to which we referred at the outset of these remarks are by Mr. T. Oliver, jun. The Italian design has an arch below the pediment, the mouldings of the entablature being carried as an archivolt. The Gothic design, which is of better character, has an arcaded porch of three openings,—but two of the number appear to be boarded, with windows inserted. In external character, the design is an advance upon the chief Congregational Chapels—which, correctly adopting two stories of windows as suitable to an interior with a gallery, have seldom got free from a singular uncouthness of proportion. That fault is, however, avoided by Mr. J. Murray, in "St. Michael's Baptist Chapel, Coventry" (11), in the highly-enriched style of Gothic. Mr. Oliver also exhibits, amongst other things, the "West Hartlepool Markets" (93 and 94), in the exterior of which he has managed the difficulty of the combination of heavy and light materials with creditable result.

Mr. Edmeston exhibits "New Public Buildings—Town Hall, Library, Municipal Offices, &c. about to be erected at Singapore—View of the Front towards the Sea; from sketches by James Fergusson" (12), wherein the chief effect is given by the arcaded loggias in the centre of two stories, and the bold projection of the iron hoods over the windows to the wings. The exception to the good treatment of this design is in these hoods, which may serve to illustrate a remark which we could better apply to other recent designs,—that there is some danger from the study of plainness, or rather the too ready acceptance of it under the idea that it is necessarily consistent with "breadth." The main roof here is also of iron. We should be glad to learn the results of experience in the use of iron roofing for habitations, in hot climates. The general use in the native works of a great thickness of non-conducting materials, would seem to be better adapted to the conditions. Mr. Edmeston also exhibits (73) "Offices of the Cambrian and Universal Fire and Life Insurance Company, 27, Gresham-street, as recently altered," a stone-fronted basement and floor above, which aims at novelty by the omission of nearly all the recognised members of Italian architecture.

Mr. H. H. Burnell exhibits (13) an "Arrangement of a Metropolitan Square," designed to effect the architectural improvement which has been advocated by others. Mr. Burnell properly substitutes a balustrade, or some other architectural feature, for the hedge and iron railing. Within the enclosure itself, next the balustrade, he has a sunk area, and thus he is able to add cellarage to the houses, and a way under the road, and to facilitate, he thinks, the repairs of the sewers and gas and water mains (which he places under the area), without opening up the main roadway. The latter part of his scheme, of course, would increase the cost

of the communications to the houses, and furnish an additional argument to those who advocate back drainage. We should mention as one of the exhibitors in the class of warehouse-architecture, Mr. T. R. Smith, who shows in No. 8, "Warehouses proposed to be erected in Chorlton-street, Manchester;" in which, brick pilasters with Corinthian capitals, are amongst the decorative features. These and the like details, with not quite the same skill as is shown in grouping in other cases, constitute a different character to that which is exhibited there, and which difference, as that which makes the good or the bad architecture of our time in such edifices, it seems well to draw attention to. Mr. Smith's design, however, as to the grouping of the stories, at least, is better than much of the recent warehouse architecture in London. The same architect exhibits also "Designs for Warehouses" (49), and some others. Messrs. W. G. and E. Habershon exhibit nine views of Parsonages which they have built (21); a "Mansion at Llandaff (313); and a "Pair of Double Villas on the Gold Tops, Newport, Monmouthshire" (373). They also exhibit (90) "The Philological Schools," which they are erecting in the New-road, St. Marylebone; the buildings in which, include a lofty red brick structure, and an octagonal building of less height, with a playground under it. The designs all are guiltless of high merit or prominent defect. The architects must be active men of business; but for their *art*, surely attempt too much. Mr. H. Currey exhibits (28 and 32) views of a house now erecting at Leigh, Surrey, for Mr. J. W. Freshfield, M.P. which is of red brick and stone. In the "Warrington Market-hall and Shed" (34), by Mr. J. Stevens, of red brick and stone, with a campanile, there is somewhat too great prominence of heavy details, without the novelty of character which claims some place in good art. The lofty front and pediment carried up considerably above the roof, offend against the structural principle of architecture. Mr. H. P. Horner shows his "St. Augustine's National Schools, at Liverpool" (48), and an "Interior Composition — Study of Stained Glass Effect" (57). He also exhibits a "Sketch" (137), illustrative of a proposition for placing an organ in St. George's Hall, Liverpool, divided into two parts lengthwise in the building, and so as not to obstruct the *vista* through the law courts.

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It was our custom, when the *Builder* was younger, to refer, at the close of a volume, to what had been done during the past year to meet the wants and wishes of our readers, and render the Journal more generally serviceable and interesting, and, sometimes, to make promises for the future. Our scope and views, however, are now, we believe, so well known, that such a course would seem to be unnecessary. We shall therefore content ourselves with saying, in very few words, that we are prepared to commence the new year with increased vigour, and that there will be no want of determination on our part to maintain the *Builder* in the position which, by the favour of the public, it now enjoys. In several departments we shall effect improvements, and, pursuing our course honestly and energetically—with no single motive beyond the desire to spread abroad information on all subjects connected with architecture and building, and the arts generally,—to assist in developing and improving the fine-art—architecture, and to advance the character, and maintain the dignity of the profession; to improve Homes; to bind together the employer and the employed; to urge the value of the beautiful, and to be otherwise useful to the extent permitted us,—we shall hope to merit and retain the confidence of our friends and supporters, and to gain, for the objects we have in view, a constantly increasing public.

ON THE LEADING PRINCIPLES IN THE COMPOSITION OF ORNAMENT OF EVERY PERIOD.*

I have now to call your attention to some of those sudden changes in each style which have been the cause of so much development in architectural forms.

The religious laws of the Egyptians forbade any change in their generally received forms, and there is the most remarkable unity of style over a period of probably many thousand years. This, however, did not result in uniformity; and although the lotus and papyrus always formed the types of the capitals of their columns, there was the greatest variety in the arrangement of these types. In the Pharaonic period, however, they were generally confined in the capitals of columns of large diameter to the bell-shape, on which were inscribed the representations of the lotus and papyrus; and in the smaller columns to the bundle of buds tied together and surmounted by a square abacus. During the Greek period, however, this was suddenly departed from, and the idea arose of breaking up the circular form of the capital: the same forms which had before been carved from the surface were here moulded on it; and beginning with the circular form, they surrounded it with four, eight, and then sixteen other circles. This principle once admitted, it will be seen how readily the general form could be varied. As an opposite example to this may be noticed the Corinthian capital, which to our own time has never varied, because no modification in plan has ever been attempted. It is always an acanthus-leaf arranged round a bell-shaped vase; and the only difference ever found between one capital and another, results from the more or less perfection of the modelling of the leaves, or in the graceful, or otherwise, proportions of the bell. Let the same modification in plan be attempted with the Corinthian capital, and it could not fail to produce an entirely new order of forms, whilst still retaining, if such should be desirable, the idea of the acanthus-leaf applied to the surface of a bell-shaped vase.

The development of Roman ornament again was restrained by the fixed law, that each acanthus-leaf grew out of the other with a leaf folded back at the point of junction. During the Byzantine period this was gradually abandoned; and when once free from this, a most rapid development in flowing lines took place in the styles which succeeded, till we arrive at that freedom in ornament which is found in the architecture throughout the world during the thirteenth century. Though other causes have been assigned to it, I myself believe that the Ionic capital of the Greeks is only an application of the volute form, which results from the common rope ornament of the Egyptians. The unwinding of a coil of rope would give the first idea to any people of the volute form, as the twisting of two strands of a rope would give the first idea of the spiral line. The volute of the Ionic capital is produced by repeating in opposite directions the very form which is the groundwork from which all Greek ornament springs. The egg-and-tongue moulding of the Greeks is clearly suggested by the cornices so common in Egypt formed by the pendent lotus. The conventional honey-suckle of the Greeks led in subsequent styles to the formation of ornaments similarly constructed, yet widely differing in general appearance.

But one of the most remarkable series of developments, and which are most easily traced, are those ornaments which result from the intersection of equidistant lines called frets. They are common to every people, and arise so naturally from their very first attempt at ornament, that it is not necessary that they should have been borrowed from each other; but there is such a remarkable series from the Egyptian to the Moresque, that it can hardly be doubted that they have been so. The Greek fret differs only from the Egyptian, in that the jumps are generally uniform, and they are the truest. So long as the idea remained fixed that they were formed by horizontal lines intersecting perpendicular lines, no great development could take place. When we have the simple meander, or one with a second line interlacing with the first, or a fret one under the other, or running in different directions, or back to back, or running round a square, we have exhausted all the combinations of which it is susceptible; but the instant you abandon the law of perpendicular lines intersecting horizontal lines, a rapid development takes place: the raking fret at once suggests to the Arabs to send diagonal lines in the opposite direction crossing the first: from this spring instantaneously the Moresque interlacing patterns. Not content with this, the Moors saw that you could use the horizontal, perpendicular, and diagonal lines in two ways, and they have therefore two varieties which produce patterns totally distinct in effect, though the same in principle: in the first, the divisions are equidistant diagonally, crossed by horizontal and perpendicular lines on each square; and on the other, the perpendicular and horizontal lines are equidistant, and the diagonal lines cross each alternate square. The number of patterns that can be produced by this system may be said to be infinite. The knotted work of the Celts differs from this system only in adding curved terminations to the diagonal lines, and may have either been developed in the same way or from the rope ornaments of the Greeks, which were also so common on Roman pavements.

The history of architecture, as it is written in the monuments, is full of these changes. Architecture never rests; it either goes forward or backward, and runs, as it were, in a series of waves: when the highest point is reached, this is as a knife-edge: it cannot rest upon it, but descends to rise again under fresh impulse.

At present we are, as it were, in a troubled sea, on which the waves have been so tossed about, that they have lost all form: the impulse having gradually got weaker and weaker, we are gradually approaching a dead calm.

In any attempt at progress in art, European nations are under great disadvantages from the general want of unity which exists. In all ages but the present, architecture has been the expression of the religious feelings of the time; but since the Reformation separated the tie between religion and art, the world has become as Protestant in art as Protestant in faith. The artistic mind has indulged in the same liberty of selection for its worship of the beautiful, as is allowed to each human soul in its worship of the Creator.

If, therefore, we would seek for vitality in art, we must turn our attention to the nations who are still faithful to the creed which inspired their art.

This was clearly seen in the Exhibition of the Works of Industry of all Nations, in 1851, which was barely opened to the public ere attention was directed to the gorgeous contributions of India.

Amid the general disorder everywhere apparent in the application of art to manufacture, the presence of so much unity of design, so much skill and judgment in its application, with so much of elegance and refinement in the execution, as was observable in all the works, not only of India, but of all the other Mohammedan contributing countries,—Tunis, Egypt, and Turkey,—excited a degree of attention from artists, manufacturers, and the public, which has not been without its fruits.

Whilst, in the works contributed by the various nations of Europe, there was everywhere to be observed an entire absence of any common principle in the application of art to manufactures—whilst from one end to the other of the vast structure there could be found but a fruitless struggle after novelty, irrespective of fitness, that all design was based upon a system of copying and misapplying the received forms of beauty of every bygone style of art, without one single attempt to produce an art in harmony with our present wants and means of production—the

* See p. 682, *ante*. Read by Mr. Owen Jones at Institute of Architects.

carver in stone, the worker in metal, the weaver and the painter, borrowing from each other, and alternately misapplying the forms peculiarly appropriate to each—there were to be found in isolated collections at the four corners of the transepts all the principles, all the unity, all the truth, for which we had looked elsewhere in vain, and this because we were amongst a people practising an art which had grown up with their civilization, and strengthened with their growth. United by a common faith, their art had necessarily a common expression, this expression varying in each according to the influence to which each nation was subject; the Tunisians still retaining the art of the Moors, who created the Alhambra; the Turks exhibiting the same art, but modified by the character of the mixed population over which they rule; the Indians uniting the severe forms of Arabian art with the graces of Persian refinement.

Deprived then as we are of the advantage of a common faith to inspire a common expression in art, does it necessarily follow that we have no hope of progress? Although we cannot have common ground of thought, is there any reason why we should not think rightly? Is there no escape from the disorder which was so apparent in 1851? I think there is, and I firmly believe that it will be found as easy to originate as to copy, if we can only throw off the lethargy which hangs over us, and that discouragement which makes us consider the works of the past as final instead of relative truth. In this very matter, indeed, opinion changes so rapidly that there is reason to believe that as each style usurps the place of honour only for a time, and then rapidly runs its course, the time will arrive when all shall have had a fair trial: we must then in very despair of finding novelty be led to look forward instead of backward.

Let us then, once for all, admit that each style of art which has appeared has worthily filled its appointed purpose. That no one has more claim to our attention than another, except so far as it follows general laws, which laws will be as true in the future as they have been in the past, and will, therefore, be our safest guides in an onward path.

Let us then accept the experience of the past as our inheritance, not rashly to squander it, but rather that we may add to the store.

I have attempted to show that in all the best periods of art, all ornament was rather based upon an observation of the principles which regulate the arrangements of form in nature, than on an attempt to imitate the absolute forms of those works; and that whenever this limit was exceeded in any art, it was one of the strongest symptoms of decline; true art consisting in idealizing, and not copying the forms of nature.

I think it desirable to insist rather strongly on this point, as in the present uncertain state in which we are, there seems a general disposition arising to reproduce, as faithfully as may be possible, natural form as works of ornament. the world has become weary of the eternal repetition of the same conventional forms which have been borrowed from styles which have passed away, and therefore can excite in us but little sympathy. There has arisen, we say, a universal cry of "Go back to Nature, as the ancients did." I should be amongst the first to echo that cry, but it will depend much on what we go to seek, how far we may succeed: if we go to Nature as the Egyptians and the Greeks went, we may hope; but if we go there like the Chinese, or even as the Gothic artists of the fourteenth and fifteenth centuries, we should gain but little. We have already, in the floral carpets, floral papers, and floral carvings of the present day, sufficient evidence to show that no art can be produced by such means; and that the more closely that Nature is copied, the farther we are removed from producing a work of art.

The pleasure we derive in contemplating the rude attempts at ornament of the most savage tribes, arises from our appreciation of a difficulty accomplished: we are at once charmed by the evidence of the intention, and surprised at the simple and ingenious process by which the result is obtained. In fact, what we seek in every art is the evidence of mind—the evidence of creative power,—which all feeling as a natural desire within them, are satisfied when they find it developed in others. It is strange, but so it is, that this evidence of mind will be more readily found in the rude attempts of ornament of a savage tribe than in the innumerable productions of a highly-advanced civilization. Individuality decreases in the ratio of the power of production. When art is manufactured by combined effort, not originated by individual effort, we fail to recognise those true instincts which constitute its greatest charm.

Although ornament is most properly only an accessory to architecture, and should never be allowed to usurp the place of structural features, or to overload or to disguise them, it is, in all cases, the very soul of an architectural monument.

By the ornament of a building we can judge more truly of the creative power which the artist has brought to bear upon the work. The general proportions of the building may be good, the mouldings may be more or less accurately copied from the most approved models, but the very instant that ornament is attempted, we see how far the architect is at the same time the artist. It is the best measure of the care and refinement bestowed upon the work. To put ornament in the right place is not easy: to render that ornament at the same time a superadded beauty and an expression of the intention of the whole work, is still more difficult.

Unfortunately, it has been too much the practice in our time to abandon to hands most unfitted for the task the adornment of the structural features of buildings, and more especially their interior decorations.

The fatal facility, of manufacturing ornament which the revived use of the acanthus leaf has given, has tended very much to this result, and deadened the creative instinct in artists' minds. What could so readily be done by another, they have left to that other to do, and so far have abdicated their high position of the architect, the head and chief.

How, then, is this universal desire for progress to be satisfied—how is any new style of ornament to be invented or developed? Some will probably say, a new style of architecture must first be found, and that we should be beginning at the wrong end to commence with ornament.

I do not think so. I have shown that the desire for works of ornament is co-existent with the earliest attempts of civilisation of every people; and that architecture adopts ornament, does not create it.

The Corinthian order of architecture is said to have been suggested by an acanthus leaf found growing round an earthen pot; but the acanthus leaf existed as an ornament long before, or, at all events, the principle of its growth was observed in the conventional ornaments of the Greeks. It was the peculiar application of this leaf to the formation of the capital of a column which was the sudden invention which created the Corinthian order.

The principle of the foliation, and even the general form of the leaves which predominate in the architecture of the thirteenth century, existed long before in the illuminated MSS.; and, derived as they were, most probably, from the East, have given an almost eastern character to Early English ornament. The architects of the thirteenth century were therefore very familiar with this system of ornamentation; and we cannot doubt, that one cause of the adoption so universally of this style during the thirteenth century, arose from this great familiarity with its leading forms which already existed.

The floral style, in direct imitation of nature which succeeded, was also preceded by the same style in works of ornament; and the facility of painting flowers in direct imitation of nature in the pages of a missal, induced an attempt to rival them in stone, in the buildings of the time.

The architectural ornament of the Elizabethan period is mostly a reproduction of the works of the loom, the painter, and the engraver. In any borrowed style, more especially, this would be so. The artists of the Elizabethan period were necessarily much more familiar with the paintings, hangings, furniture, metal-work, and other articles of luxury, which England received from the Continent, than they would be with the architectural monuments; and it is this familiarity with the ornamentation of the period, but imperfect knowledge of the architecture, which led to the development of those peculiarities which distinguish Elizabethan architecture from the purer architecture of the Revival.

I therefore think I am justified in the belief, that a new style of ornament may be produced independent of a new style of architecture; and, moreover, that it would be one of the readiest means of arriving at a new style: for instance, if we could only arrive at the invention of a new termination to a means of support, one of the most difficult points would be accomplished.

The chief features of a building which form a style, are, first, the means of support; secondly, the means of spanning space between the supports; and, thirdly, the formation of the roof. It is the decoration of these structural features which gives the characteristics of style, and they all follow so naturally one from the other, that the invention of one will command the rest.

It would appear, at first sight, that the means of varying these structural features had been exhausted, and that we have nothing left but to use either one or the other of the systems which have already run their course.

If we reject the use of the column and horizontal beam of the Greeks and Egyptians, the round arch of the Roman, the pointed arch and vault of the Middle Ages, and the domes of the Mohammedans, it will be asked—What is left? We shall perhaps be told that all the means of covering space have already been exhausted, and that it were vain to look for other forms. But could not this have been said in all time? Could the Egyptian have imagined that any other mode of spanning space would ever be found than by his huge blocks of stone? Could the Mediæval architect have ever dreamed that his airy vaults could be surpassed, and that gulfs could be crossed by hollow tubes of iron? Let us not despair: the world has not seen, most assuredly, the last of the architectural systems. If we are now passing through an age of copying, and architecture with us exhibits a want of vitality, the world has passed through similar periods before. From the present chaos there will arise, undoubtedly (it may not be in our time), an architecture which shall be worthy of the high advance which man has made in every other direction towards the possession of the tree of knowledge.

To return to our subject, how is any new style of art or new style of ornament to be formed, or even attempted to be formed? In the first place, we have little hope that we are ever destined to see more than the commencement of a change: the architectural profession is at the present time too much under the influence of past education, on the one hand, and too much influenced by an ill-informed public on the other; but the rising generation in both classes are born under happier influences, and it is to them we must look for hope in the future. It is for their use that I have gathered together this collection of the works of the past; not that they should be slavishly copied, but that artists should, by an attentive examination of the principles which pervade all the works of the past, and which have excited universal admiration, be led to the creation of new forms equally beautiful. We believe that if a student in the arts, earnest in his search after knowledge, will only lay aside all temptation to indolence, will examine for himself the works of the past, compare them with the works of nature, bend his mind to a thorough appreciation of the principles which reign in each, he cannot fail to be himself a creator, and to individualize new forms, instead of reproducing the forms of the past. We think it impossible that a student fully impressed with the laws of the universal fitness of things in nature, with the wonderful variety of form, yet all arranged around some few fixed laws, the proportionate distribution of areas, the tangential curvatures of lines, and the radiation from a parent stem, whatever type he may borrow from nature, if he will dismiss from his mind the desire to imitate it, but will only seek to follow still the path which it so plainly shows him, we doubt not that new forms of beauty

of the communications to the houses, and furnish an additional argument to those who advocate back drainage. We should mention as one of the exhibitors in the class of warehouse-architecture, Mr. T. R. Smith, who shows in No. 8, "Warehouses proposed to be erected in Chorlton-street, Manchester;" in which, brick pilasters with Corinthian capitals, are amongst the decorative features. These and the like details, with not quite the same skill as is shown in grouping in other cases, constitute a different character to that which is exhibited there, and which difference, as that which makes the good or the bad architecture of our time in such edifices, it seems well to draw attention to. Mr. Smith's design, however, as to the grouping of the stories, at least, is better than much of the recent warehouse architecture in London. The same architect exhibits also "Designs for Warehouses" (49), and some others. Messrs. W. G. and E. Habershon exhibit nine views of Parsonages which they have built (21); a "Mansion at Llandaff (313); and a "Pair of Double Villas on the Gold Tops, Newport, Monmouthshire" (373). They also exhibit (90) "The Philological Schools," which they are erecting in the New-road, St. Marylebone; the buildings in which, include a lofty red brick structure, and an octagonal building of less height, with a playground under it. The designs all are guiltless of high merit or prominent defect. The architects must be active men of business; but for their *art*, surely attempt too much. Mr. H. Currey exhibits (28 and 32) views of a house now erecting at Leigh, Surrey, for Mr. J. W. Freshfield, M.P. which is of red brick and stone. In the "Warrington Market-hall and Shed" (34), by Mr. J. Stevens, of red brick and stone, with a campanile, there is somewhat too great prominence of heavy details, without the novelty of character which claims some place in good art. The lofty front and pediment carried up considerably above the roof, offend against the structural principle of architecture. Mr. H. P. Horner shows his "St. Augustine's National Schools, at Liverpool" (48), and an "Interior Composition — Study of Stained Glass Effect" (57). He also exhibits a "Sketch" (137), illustrative of a proposition for placing an organ in St. George's Hall, Liverpool, divided into two parts lengthwise in the building, and so as not to obstruct the *vista* through the law courts.

We shall continue our notice of the exhibition next week.

It was our custom, when the *Builder* was younger, to refer, at the close of a volume, to what had been done during the past year to meet the wants and wishes of our readers, and render the Journal more generally serviceable and interesting, and, sometimes, to make promises for the future. Our scope and views, however, are now, we believe, so well known, that such a course would seem to be unnecessary. We shall therefore content ourselves with saying, in very few words, that we are prepared to commence the new year with increased vigour, and that there will be no want of determination on our part to maintain the *Builder* in the position which, by the favour of the public, it now enjoys. In several departments we shall effect improvements, and, pursuing our course honestly and energetically—with no single motive beyond the desire to spread abroad information on all subjects connected with architecture and building, and the arts generally,—to assist in developing and improving the fine-art—architecture, and to advance the character, and maintain the dignity of the profession; to improve Homes; to bind together the employer and the employed; to urge the value of the beautiful, and to be otherwise useful to the extent permitted us,—we shall hope to merit and retain the confidence of our friends and supporters, and to gain, for the objects we have in view, a constantly increasing public.

ON THE LEADING PRINCIPLES IN THE COMPOSITION OF ORNAMENT OF EVERY PERIOD.*

I have now to call your attention to some of those sudden changes in each style which have been the cause of so much development in architectural forms.

The religious laws of the Egyptians forbade any change in their generally received forms, and there is the most remarkable unity of style over a period of probably many thousand years. This, however, did not result in uniformity; and although the lotus and papyrus always formed the types of the capitals of their columns, there was the greatest variety in the arrangement of these types. In the Pharaonic period, however, they were generally confined in the capitals of columns of large diameter to the bell-shape, on which were inscribed the representations of the lotus and papyrus; and in the smaller columns to the bundle of buds tied together and surmounted by a square abacus. During the Greek period, however, this was suddenly departed from, and the idea arose of breaking up the circular form of the capital: the same forms which had before been carved from the surface were here moulded on it; and beginning with the circular form, they surrounded it with four, eight, and then sixteen other circles. This principle once admitted, it will be seen how readily the general form could be varied. As an opposite example to this may be noticed the Corinthian capital, which to our own time has never varied, because no modification in plan has ever been attempted. It is always an acanthus-leaf arranged round a bell-shaped vase; and the only difference ever found between one capital and another, results from the more or less perfection of the modelling of the leaves, or in the graceful, or otherwise, proportions of the bell. Let the same modification in plan be attempted with the Corinthian capital, and it could not fail to produce an entirely new order of forms, whilst still retaining, if such should be desirable, the idea of the acanthus-leaf applied to the surface of a bell-shaped vase.

The development of Roman ornament again was restrained by the fixed law, that each acanthus-leaf grew out of the other with a leaf folded back at the point of junction. During the Byzantine period this was gradually abandoned; and when once free from this, a most rapid development in flowing lines took place in the styles which succeeded, till we arrive at that freedom in ornament which is found in the architecture throughout the world during the thirteenth century. Though other causes have been assigned to it, I myself believe that the Ionic capital of the Greeks is only an application of the volute form, which results from the common rope ornament of the Egyptians. The unwinding of a coil of rope would give the first idea to any people of the volute form, as the twisting of two strands of a rope would give the first idea of the spiral line. The volute of the Ionic capital is produced by repeating in opposite directions the very form which is the groundwork from which all Greek ornament springs. The egg-and-tongue moulding of the Greeks is clearly suggested by the cornices so common in Egypt formed by the pendent lotus. The conventional honey-suckle of the Greeks led in subsequent styles to the formation of ornaments similarly constructed, yet widely differing in general appearance.

But one of the most remarkable series of developments, and which are most easily traced, are those ornaments which result from the intersection of equidistant lines called frets. They are common to every people, and arise so naturally from their very first attempt at ornament, that it is not necessary that they should have been borrowed from each other; but there is such a remarkable series from the Egyptian to the Moresque, that it can hardly be doubted that they have been so. The Greek fret differs only from the Egyptian, in that the jumps are generally uniform, and they are the truest. So long as the idea remained fixed that they were formed by horizontal lines intersecting perpendicular lines, no great development could take place. When we have the simple meander, or one with a second line interlacing with the first, or a fret one under the other, or running in different directions, or back to back, or running round a square, we have exhausted all the combinations of which it is susceptible; but the instant you abandon the law of perpendicular lines intersecting horizontal lines, a rapid development takes place: the raking fret at once suggests to the Arabs to send diagonal lines in the opposite direction crossing the first: from this spring instantaneously the Moresque interlacing patterns. Not content with this, the Moors saw that you could use the horizontal, perpendicular, and diagonal lines in two ways, and they have therefore two varieties which produce patterns totally distinct in effect, though the same in principle: in the first, the divisions are equidistant diagonally, crossed by horizontal and perpendicular lines on each square; and on the other, the perpendicular and horizontal lines are equidistant, and the diagonal lines cross each alternate square. The number of patterns that can be produced by this system may be said to be infinite. The knotted work of the Celts differs from this system only in adding curved terminations to the diagonal lines, and may have either been developed in the same way or from the rope ornaments of the Greeks, which were also so common on Roman pavements.

The history of architecture, as it is written in the monuments, is full of these changes. Architecture never rests; it either goes forward or backward, and runs, as it were, in a series of waves: when the highest point is reached, this is as a knife-edge: it cannot rest upon it, but descends to rise again under fresh impulse.

At present we are, as it were, in a troubled sea, on which the waves have been so tossed about, that they have lost all form: the impulse having gradually got weaker and weaker, we are gradually approaching a dead calm.

In any attempt at progress in art, European nations are under great disadvantages from the general want of unity which exists. In all ages but the present, architecture has been the expression of the religious feelings of the time; but since the Reformation separated the tie between religion and art, the world has become as Protestant in art as Protestant in faith. The artistic mind has indulged in the same liberty of selection for its worship of the beautiful, as is allowed to each human soul in its worship of the Creator.

If, therefore, we would seek for vitality in art, we must turn our attention to the nations who are still faithful to the creed which inspired their art.

This was clearly seen in the Exhibition of the Works of Industry of all Nations, in 1851, which was barely opened to the public ere attention was directed to the gorgeous contributions of India.

Amid the general disorder everywhere apparent in the application of art to manufacture, the presence of so much unity of design, so much skill and judgment in its application, with so much of elegance and refinement in the execution, as was observable in all the works, not only of India, but of all the other Mohammedan contributing countries,—Tunis, Egypt, and Turkey,—excited a degree of attention from artists, manufacturers, and the public, which has not been without its fruits.

Whilst, in the works contributed by the various nations of Europe, there was everywhere to be observed an entire absence of any common principle in the application of art to manufactures—whilst from one end to the other of the vast structure there could be found but a fruitless struggle after novelty, irrespective of fitness, that all design was based upon a system of copying and misapplying the received forms of beauty of every bygone style of art, without one single attempt to produce an art in harmony with our present wants and means of production—the

* See p. 682, *ante*. Read by Mr. Owen Jones at Institute of Architects.

carver in stone, the worker in metal, the weaver and the painter, borrowing from each other, and alternately misapplying the forms peculiarly appropriate to each—there were to be found in isolated collections at the four corners of the transepts all the principles, all the unity, all the truth, for which we had looked elsewhere in vain, and this because we were amongst a people practising an art which had grown up with their civilization, and strengthened with their growth. United by a common faith, their art had necessarily a common expression, this expression varying in each according to the influence to which each nation was subject; the Tunisians still retaining the art of the Moors, who created the Alhambra; the Turks exhibiting the same art, but modified by the character of the mixed population over which they rule; the Indians uniting the severe forms of Arabian art with the graces of Persian refinement.

Deprived then as we are of the advantage of a common faith to inspire a common expression in art, does it necessarily follow that we have no hope of progress? Although we cannot have common ground of thought, is there any reason why we should not think rightly? Is there no escape from the disorder which was so apparent in 1851? I think there is, and I firmly believe that it will be found as easy to originate as to copy, if we can only throw off the lethargy which hangs over us, and that discouragement which makes us consider the works of the past as final instead of relative truth. In this very matter, indeed, opinion changes so rapidly that there is reason to believe that as each style usurps the place of honour only for a time, and then rapidly runs its course, the time will arrive when all shall have had a fair trial: we must then in very despair of finding novelty be led to look forward instead of backward.

Let us then, once for all, admit that each style of art which has appeared has worthily filled its appointed purpose. That no one has more claim to our attention than another, except so far as it follows general laws, which laws will be as true in the future as they have been in the past, and will, therefore, be our safest guides in an onward path.

Let us then accept the experience of the past as our inheritance, not rashly to squander it, but rather that we may add to the store.

I have attempted to show that in all the best periods of art, all ornament was rather based upon an observation of the principles which regulate the arrangements of form in nature, than on an attempt to imitate the absolute forms of those works; and that whenever this limit was exceeded in any art, it was one of the strongest symptoms of decline; true art consisting in idealizing, and not copying the forms of nature.

I think it desirable to insist rather strongly on this point, as in the present uncertain state in which we are, there seems a general disposition arising to reproduce, as faithfully as may be possible, natural form as works of ornament. the world has become weary of the eternal repetition of the same conventional forms which have been borrowed from styles which have passed away, and therefore can excite in us but little sympathy. There has arisen, we say, a universal cry of "Go back to Nature, as the ancients did." I should be amongst the first to echo that cry, but it will depend much on what we go to seek, how far we may succeed: if we go to Nature as the Egyptians and the Greeks went, we may hope; but if we go there like the Chinese, or even as the Gothic artists of the fourteenth and fifteenth centuries, we should gain but little. We have already, in the floral carpets, floral papers, and floral carvings of the present day, sufficient evidence to show that no art can be produced by such means; and that the more closely that Nature is copied, the farther we are removed from producing a work of art.

The pleasure we derive in contemplating the rude attempts at ornament of the most savage tribes, arises from our appreciation of a difficulty accomplished: we are at once charmed by the evidence of the intention, and surprised at the simple and ingenious process by which the result is obtained. In fact, what we seek in every art is the evidence of mind—the evidence of creative power,—which all feeling as a natural desire within them, are satisfied when they find it developed in others. It is strange, but so it is, that this evidence of mind will be more readily found in the rude attempts of ornament of a savage tribe than in the innumerable productions of a highly-advanced civilization. Individuality decreases in the ratio of the power of production. When art is manufactured by combined effort, not originated by individual effort, we fail to recognise those true instincts which constitute its greatest charm.

Although ornament is most properly only an accessory to architecture, and should never be allowed to usurp the place of structural features, or to overload or to disguise them, it is, in all cases, the very soul of an architectural monument.

By the ornament of a building we can judge more truly of the creative power which the artist has brought to bear upon the work. The general proportions of the building may be good, the mouldings may be more or less accurately copied from the most approved models, but the very instant that ornament is attempted, we see how far the architect is at the same time the artist. It is the best measure of the care and refinement bestowed upon the work. To put ornament in the right place is not easy: to render that ornament at the same time a superadded beauty and an expression of the intention of the whole work, is still more difficult.

Unfortunately, it has been too much the practice in our time to abandon to hands most unfitted for the task the adornment of the structural features of buildings, and more especially their interior decorations.

The fatal facility, of manufacturing ornament which the revived use of the acanthus leaf has given, has tended very much to this result, and deadened the creative instinct in artists' minds. What could so readily be done by another, they have left to that other to do, and so far have abdicated their high position of the architect, the head and chief.

How, then, is this universal desire for progress to be satisfied—how is any new style of ornament to be invented or developed? Some will probably say, a new style of architecture must first be found, and that we should be beginning at the wrong end to commence with ornament.

I do not think so. I have shown that the desire for works of ornament is co-existent with the earliest attempts of civilisation of every people; and that architecture adopts ornament, does not create it.

The Corinthian order of architecture is said to have been suggested by an acanthus leaf found growing round an earthen pot; but the acanthus leaf existed as an ornament long before, or, at all events, the principle of its growth was observed in the conventional ornaments of the Greeks. It was the peculiar application of this leaf to the formation of the capital of a column which was the sudden invention which created the Corinthian order.

The principle of the foliation, and even the general form of the leaves which predominate in the architecture of the thirteenth century, existed long before in the illuminated MSS.; and, derived as they were, most probably, from the East, have given an almost eastern character to Early English ornament. The architects of the thirteenth century were therefore very familiar with this system of ornamentation; and we cannot doubt, that one cause of the adoption so universally of this style during the thirteenth century, arose from this great familiarity with its leading forms which already existed.

The floral style, in direct imitation of nature which succeeded, was also preceded by the same style in works of ornament; and the facility of painting flowers in direct imitation of nature in the pages of a missal, induced an attempt to rival them in stone, in the buildings of the time.

The architectural ornament of the Elizabethan period is mostly a reproduction of the works of the loom, the painter, and the engraver. In any borrowed style, more especially, this would be so. The artists of the Elizabethan period were necessarily much more familiar with the paintings, hangings, furniture, metal-work, and other articles of luxury, which England received from the Continent, than they would be with the architectural monuments; and it is this familiarity with the ornamentation of the period, but imperfect knowledge of the architecture, which led to the development of those peculiarities which distinguish Elizabethan architecture from the purer architecture of the Revival.

I therefore think I am justified in the belief, that a new style of ornament may be produced independent of a new style of architecture; and, moreover, that it would be one of the readiest means of arriving at a new style: for instance, if we could only arrive at the invention of a new termination to a means of support, one of the most difficult points would be accomplished.

The chief features of a building which form a style, are, first, the means of support; secondly, the means of spanning space between the supports; and, thirdly, the formation of the roof. It is the decoration of these structural features which gives the characteristics of style, and they all follow so naturally one from the other, that the invention of one will command the rest.

It would appear, at first sight, that the means of varying these structural features had been exhausted, and that we have nothing left but to use either one or the other of the systems which have already run their course.

If we reject the use of the column and horizontal beam of the Greeks and Egyptians, the round arch of the Roman, the pointed arch and vault of the Middle Ages, and the domes of the Mohammedans, it will be asked—What is left? We shall perhaps be told that all the means of covering space have already been exhausted, and that it were vain to look for other forms. But could not this have been said in all time? Could the Egyptian have imagined that any other mode of spanning space would ever be found than by his huge blocks of stone? Could the Mediæval architect have ever dreamed that his airy vaults could be surpassed, and that gulfs could be crossed by hollow tubes of iron? Let us not despair: the world has not seen, most assuredly, the last of the architectural systems. If we are now passing through an age of copying, and architecture with us exhibits a want of vitality, the world has passed through similar periods before. From the present chaos there will arise, undoubtedly (it may not be in our time), an architecture which shall be worthy of the high advance which man has made in every other direction towards the possession of the tree of knowledge.

To return to our subject, how is any new style of art or new style of ornament to be formed, or even attempted to be formed? In the first place, we have little hope that we are ever destined to see more than the commencement of a change: the architectural profession is at the present time too much under the influence of past education, on the one hand, and too much influenced by an ill-informed public on the other; but the rising generation in both classes are born under happier influences, and it is to them we must look for hope in the future. It is for their use that I have gathered together this collection of the works of the past; not that they should be slavishly copied, but that artists should, by an attentive examination of the principles which pervade all the works of the past, and which have excited universal admiration, be led to the creation of new forms equally beautiful. We believe that if a student in the arts, earnest in his search after knowledge, will only lay aside all temptation to indolence, will examine for himself the works of the past, compare them with the works of nature, bend his mind to a thorough appreciation of the principles which reign in each, he cannot fail to be himself a creator, and to individualize new forms, instead of reproducing the forms of the past. We think it impossible that a student fully impressed with the laws of the universal fitness of things in nature, with the wonderful variety of form, yet all arranged around some few fixed laws, the proportionate distribution of areas, the tangential curvatures of lines, and the radiation from a parent stem, whatever type he may borrow from nature, if he will dismiss from his mind the desire to imitate it, but will only seek to follow still the path which it so plainly shows him, we doubt not that new forms of beauty

will more readily arise under his hand, than can ever follow from a continuation in the prevailing fashion of resting only on the works of the past for present inspiration. It will require but a few minds to give the first impulse: the way once pointed out, others will follow; readily improving, refining upon each other's efforts, till another culminating point of art shall be again reached to subside into decline and disorder. For the present, however, we are far enough removed from either stage.

I have been desirous to aid this movement to the extent of my power, and in the ten plates of natural leaves and flowers which accompany the examples of ancient ornament, I have gathered together many of those natural types which I thought best calculated to awaken a recognition of the natural laws which prevail in the distribution of form. But, indeed, these laws will be found to be so universal that they are as well seen in one leaf as in a thousand. The single example of the chestnut-leaf contains the whole of the laws which are to be found in nature: no art can rival the perfect grace of its form, the perfect proportional distribution of the areas, the radiation from the parent stem, the tangential curvatures of the lines, or the even distribution of the surface decoration. We may gather this from a single leaf; but if we further study the law of their growth, we shall see in an assemblage of leaves of the vine or the ivy, that the same law which prevails in the formation of the single leaf prevails also in the assemblage of leaves. As in the chestnut leaf, the area of each lobe diminishes in equal proportion as it approaches the stem; so in any combination of leaves, each leaf is everywhere in harmony with the group: as in one leaf the areas are so perfectly distributed, that the repose of the eye is maintained, it is equally so in the group: we never find a disproportionate leaf interfering to destroy the repose of the group. This universal law of equilibrium is everywhere apparent in every work of nature. The same laws prevail in the distribution of lines on the surface of flowers: not a line upon the surfaces but tends more surely to develope the form,—not a line which could be removed, and leave the form more perfect; and this why? Because the beauty arises naturally from the law of the growth of each plant. The life-blood,—the sap, as it leaves the stem, takes the readiest way of reaching the confines of the surface, however varied that surface may be: the greater the distance it has to travel, or the weight it has to support, the thicker will be its substance.

From the same cause it results that the basis of all form in natural flowers is geometry: the impulse which forms the surface, starting from the centre with equal force, necessarily stops at equal distances: the result is symmetry and regularity.

Who, then, will dare say that there is nothing left for us but to copy the five or seven-lobed flowers of the thirteenth century,—the honeysuckle of the Greeks or the acanthus of the Romans,—that this alone can produce art? Is Nature so tied? See how various the forms, and how unvarying the principles. We feel persuaded that there is yet a future open to us: we have but to arouse from our slumbers. The Creator has not made all things beautiful, that we should thus set a limit to our admiration: on the contrary, as all His works are offered for our enjoyment, so are they offered for our study. They are there to awaken a natural instinct implanted in us, viz. a desire to emulate in the works of our hands the order, the symmetry, the grace, the fitness, which the Creator has sown broadcast over the earth.

THE GOVERNMENT COMPETITION.

We have received a score of letters asking a variety of questions, sensible and foolish, as to the requirements in the competition for the proposed Government Offices. Our reply in many of the cases could but be an opinion that might mislead. We should, of course, in all instances advise a strict adherence to the conditions. One asks if he may prepare his designs for the War Office and the Foreign Office to form one building: and we may say in reply that we have reason to believe it would not be objected to. To the inquiry, is the expression,—"all the requirements for a nobleman's town-house" intended to include stabling and coach-houses? we are able to say, no. Some of the competitors consider they should have permission to visit the various Government Offices to obtain additional information. The Chief Commissioner, however, thinking it unnecessary, has declined to afford it.

"The elevations," writes another, "are to be simply in *outline*. Will you let me know if it is considered that this would prevent the use of a wash of blue to indicate windows and roof, if made a feature of the design." Strictly speaking, the instructions would not permit this, but what latitude the judges may be disposed to afford, we cannot pretend to say.——Those who ask if colour may be introduced to distinguish the materials used, we would remind, that although the elevations are to be "in line only," nothing is prescribed as to the colouring of "enlarged details of portions of the designs." We are unable to say if it is proposed to continue the embankment of the river any further down its course than the part coloured, but the arrangement is doubtless made with that expectation in view.

As to the addition to the block plan, of *designs* for the various buildings comprised, we would suggest, in order to be on the safe side, that these should be sent in in such a way that they might be put aside by the judges should such be their determination, without imperilling the plan. As to the *extent* of the plan of proposed improvements of the leading thoroughfares, we can say that the plan issued by the Office of Works is not to be viewed as limiting it. It may include half London.

To go from great to small, the provision of "a boiler-house and space for warming apparatus," will not supersede the necessity for open fireplaces.

We understand that between 1,600 and 1,700 copies of the particulars of the competitions have been forwarded in reply to applications.

ARCHITECTURAL NOTES IN ANGLESEA.*

Many of the houses in Beaumaris are of great age, and constructed generally of a stone base with an upper story of timber framing. Though small, there is good detail in some of them; but during the last year or two many have been destroyed, and more are threatened. The oldest may date as far back as Edward I. The chief renown of domestic architecture is the old mansion of the Bulkeleys, called "Plas coch," corrupted into "The palace," standing a short distance south of the church, in the main street. It consists of two courts, one on the north side, long and narrow, running from east to west, and open at each end, so that it somewhat resembles a short street: the second court, on the south, is nearly square, and extends westward about half the length of the buildings forming the other court. The north side of the street-like court is occupied by the offices, the kitchen in the centre, the stables, bakehouse, brewhouse, &c. now used as stables and cottages. This range stands quite detached from the other buildings. On the south side are the chief apartments, two parlours and two upper rooms, standing on the east, next the street; next, the hall entrance, screened from the hall, the great hall, the staircase (here the cross building of the second court branches southwards), the drawing-room and dining-room above it, and still further to the east, two or three other apartments. The east side of the south court is terminated by a square tower, containing a staircase. Of the south side only a wall remains, with a square window of stone, of two cinquefoiled lights. The great hall is a fine and lofty room, and the style appears to be that of the reign of Henry VII. The roof has been open, and arched with moulded ribs below the tie-beam, above which are two diagonal braces. At the east end, a fine arched and traceried screen framed up to the roof, and acting as a principal, has fenced off a lobby across this end of the hall, connecting the two courts. The entrance to the north court is by an arched door of oak, and has had a timber porch: that to the south court has a four-centered arch of stone. At one side of this passage two oak door-frames, with carved traceried spandrils and doors with depressed arches, enter two rooms next the street. In the passage some of the carved panels remain in the screen. The upper half of the arch in the screen has a good moulding with oak capitals, and contained a music gallery. The whole of this screen is blocked up with rough boards and daubed with plaster, and the lobby used for a cart-shed; the music-gallery for lumber. In the reign of Elizabeth, or possibly a little earlier, this fine room was ceiled, below the tie-beams, with a ceiling closely covered with pendants and tracery, and a cornice moulding of arabesque strapwork. This work is of a graceful flowing pattern, and the compartments in the tracery and pendants are filled in with the same: the pendants terminate in acorn-shaped drops, each of different design. The ornaments and tracery of the ceiling have been richly gilt; the lower part of the walls panelled to the height of 9 feet with oak wainscot: the upper portion being rough, has evidently been hung with tapestry, and the effect of this room must have been very rich and good. A large bay window—almost a room—has been thrown out on the south side into the court, and a room constructed above it. The timbers dividing this large window into bays are carved inside and outside with a running pattern of foliage; and bulls' heads in the interior, this being the crest of the Bulkeleys. At the west end of the hall is a deep cove, which rises as high as the spring of the roof: the upper beam crossing the hall has been ornamented with paterae, and the cove is divided into square panels, subdivided by secondary ribs from angle to angle. This seems to have been intended as a kind of canopy to the dais, and is coeval with the earlier work in the hall. At the north side, near the west end is a two-light cinque-foiled window, with square head; and in the centre of the same side is a large arched fireplace, the arch a flattened ellipse, and quite plain. The hall is paved with slabs of sandstone, in elongated hexagons and squares alternated. It is now used as a joiners' shop, and each month must add to its ruinous state, no care being taken of it; and even the leaky roof is allowed to drip and destroy the fine ceiling. At the west end a door leads to the staircase, which has no architectural character. It is contrived so as to pass between two walls without a handrail. The next room westward is the drawing-room. This apartment runs across the whole breadth of the house, and is very spacious. At the north end was a window of several lights, now closed; and at the south a square two-light window, with transom, and a doorway leading to the garden. It has a flat traceried ceiling of good pattern, the tracery being all in angular figures, with bosses, which are alternately square and round, the round being charged with the heraldic device of the bull's head. This room is wainscotted with oak to the ceiling, the cornice being a kind of crenelated ornament, with a square flower below. The fireplace is quite plain, being a simple square opening; indeed, it is a feature in this mansion, that the fireplaces, with one exception, are without ornament. This room is used as a bakehouse, as well as a residence for the baker, and his large brick oven in one corner has sadly damaged the ceiling, and must be very dangerous. This family has occupied the room for sixty years, and when they first came the oak panelling was polished, and the bosses of the ceiling gilded; now a coat of yellow-wash is the ornament of walls and ceiling. The rooms beyond the drawing-room contain only a little oak panel work, but are large and light.

The dining-room is of the same period as the hall, and is above the drawing-room. The roof has been open-timbered; the principals, of which there are two, spring from short shafts of oak, with moulded capitals and bases, which rise from the floor of the apartment. This room has also been ceiled at the same time as the hall at the tie-beam, the ceiling presenting a semi-hexagon, ornamented by a band, about 2 feet wide, of arabesque ornament, of nearly the same pattern as that in the hall. The walls are panelled, above one half their height,

* See p 624, *ante*.

with oak, the fire-place having a simple square moulding. The original windows have been replaced by sashes. The building forming the west side of the south court is built of stone, and wholly of the later date: it has large stone mullioned and transomed windows, with low, angular pediments, and a door in the centre, leading through into the garden. The garden front is an exact repetition of the side next the court, except that the tower at the corner is terminated, below the eaves, with a lean-to roof; and that at a later period the side has been covered with small slates, now partly fallen away. In the upper story of this portion is a long gallery, lighted by a large window at the north end, having the same semi-hexagon roof and ornaments before described. Here at the further end from the window, at one side, is the only ornamental fire-place in the house. Below the lintel, the jambs are divided into small panels, with coped centres: above, on each side, are coupled pilasters, or pinnacles, terminating in small pyramids, and jointed or moulded in the way common in Elizabethan work: between each pair a tree is represented; and in the centre of the fire-place a large shield, with coat-of-arms and supporters, two hawks. All I could learn of the heraldic bearings was, that they did not belong to the Bulkeleys. The whole is executed in very hard cement, and has been richly coloured and gilt: the execution is good, and the hawks designed with great spirit. The garden extends, or has extended, as far as the larger fragment of the lower walk, and is not built upon. The mansion is chiefly built of stone, but much of the upper part is timbered. The whole of this very interesting mansion is in a grievous state of neglect: poor families occupy the various rooms: pig-styes are built up against the walls, and sap their foundations with decay and dirt: no pains are taken to keep the roof in order, and unless some repairs are made, not many years hence the place must fall into ruin. It is said that a street is to be cut through this place, and the house and the tower wall both destroyed. It would be a very great pity to destroy this building, even for the sake of a convenient street, especially as the land between it and the church is occupied by few buildings of any value. At any rate, the main building might be allowed to stand on one side of the proposed street, and only the offices taken down to make way for the road. If the roof of the hall were patched and repaired, and the windows opened, and the place cleared of filth, it might still stand many years, and could serve the purpose of a lecture-hall, or any other use that it might be required for. At any rate, Sir Richard Bulkeley should pause before sweeping away the remains of the abode of his ancestors: if once taken down, an interesting remain is lost, and no regret can restore it. If it is, indeed, doomed, which I hope it is not, I trust some clever photographer will at least preserve its similitude. E. W. C.

THE STUDY OF ARCHITECTURE.

IT has often struck me that the opinions held and promulgated by some architects, in your Journal, are more or less inconsistent. As a matter of course, the elevation of his art must be a foremost principle in the breast of every true architect. At the risk of incurring much censure, I venture to lay before you certain ideas which I have myself formed, and which are opposed to the ideas of many others, judging by their writings; but should I be able to provoke an argument, it might, perhaps, be of service in elucidating more decided expressions than have yet been made use of, and, by clearing away unmeaning verbiage, might be instrumental in enlightening the youth who are entering the profession, as to the true position of their art, and their proper vocation.

A great amount of rhapsodical expression has appeared in print, and hard, and strange, and unpronounceable words have been made use of by modern professors, or critics, of architecture; doubtless, with a view of enlightening the public mind, but really productive of much confusion therein. Much has been said of the position of architecture as one of the fine arts, and its professors have been urged to remember that common materials are to be used in such a manner as that they may, in their arrangement, plainly point to the *nature* of the edifice they compose; also, that they should stand as evidence to posterity of the character of the generation which erects them. You yourself, sir, have most ably furnished us, in a series of papers, with the proof that S one may become the material for transmission of History, and that the finger of the architect not only may, but ought to, trace upon his works these valuable characteristics. To this one cannot but devoutly agree. Our churches, our theatres, our palaces, our public buildings, as well as our more humble dwelling-houses and shops, should clearly, by their architecture, point to their purpose. They should also embody the characteristics of their age, in order that they may be beneficial to the future philosophic historian and moralist.

To this most architects are agreed; and in consequence a clamour has arisen for a new style which shall embody these principles. It is urged that in the architecture of the past these desiderata have been complied with, and that in the study of Greek, Roman, or Gothic buildings, the inquiring mind is satisfied with the evident appropriateness of the architecture to the purposes of the edifices, and with the clear exposition of the habits and manners of the generations which erected them. A Roman temple or a Gothic cathedral equally points out the religion and manners of its founder. A modern English edifice, many will agree, does *not*. The causes of it remain to be inquired into and stated with *simplicity*, that the smallest comprehension may understand them, and strive to find a remedy. After having myself studied some of the ruins of antiquity, and carefully considered the subject, I am induced to offer you a few observations, since I confess that I have read many papers which have appeared, professing to guide the aspirant after architectural truth, but which really have more the effect of confounding him and bewildering him. The observations I would offer, I would do in all humility, and seek rather to draw forth in simple and plain language the matured opinions of others, than to set myself up in any way as a guide.

It is of paramount importance that the young architect should study the history of his art from the earliest ages; and, where practicable, it is of great benefit that this study should be prosecuted among existing architectural remains. This is acknowledged by all, and by many is carried into practice; but curiously, very many of those who have so done have fallen into the very error which is now so much deprecated. Instead of approaching their task with reverence, and with the spirit of a philosopher, to learn its *true* lessons, I fear that in several instances, they only find therein a means of satisfying their love of sketching from a beautiful model, and learn to venerate the *model* itself, and take that for a precedent and a law, which should be no more than the exemplification thereof. Hence the controversy about styles; and we find the architect more disposed to reproduce some bygone style in its integrity from the model than to attempt to devise anything new. Hence the profession is divided, some practising chiefly in classic art, and some in Gothic; one man designing all his structures after the model of Roman architecture, another after the model of Mediæval. But it has occurred to me that this strict classification of styles is more in the province of the archæologist than the architect. The architect is bound to study the history of his art in all ages and in all countries of the globe, in such a manner that he may deduce from it the real principles which have conduced to its ancient greatness. It is not the sketcher that is wanted, nor the poetic dreamer, nor the visionary, but the philosopher. He should study in and apart from their buildings the manners and customs of the ancients. Their soil and climate, their habits and their religion, each and all strongly influenced their architecture. Let him study all these, then, and in conjunction with them let him study the plans and elevations of their buildings, the style of ornamentation, the proportions of all parts, and the form of the varied mouldings and embellishments. By studying these in connection with each other it will be hard if he cannot at last trace clearly the progress of cause and effect, and learn for himself in what the great secret of the magnificence of ancient art consisted. The rules which will thus become clearly apparent to him need only application to produce the result "so greatly to be wished: a "new style" will gradually grow out of them.

Of all the lessons to be learnt from this study that of appropriateness will indelibly fix itself on the mind. I am inclined to consider this *the* great secret. For in investigating antiquity we find that the chief charm of every building is its appropriateness; its adaptation to its determined purpose. In this country, alas! we must too often reverse the phrase, for inappropriateness and want of adaptation to their purpose is the great characteristic of British edifices.

I have written these remarks as preliminary to others which I would make in exemplification of the foregoing maxims. Of all subjects, ecclesiastical architecture will always hold the first rank in the professional mind; and at a future date I will endeavour to lay before you certain hints which have occurred to me in connection therewith, in order that I may elicit the opinions of those whose knowledge and experience in the profession fully qualify them to enlighten the junior branches, and in order that the true principles which should guide the architect in designing ecclesiastical edifices may be properly defined. J. K.

METAL AND OTHER WORKS OF ART IN THE MANCHESTER EXHIBITION.

THE proposed museum of works of art in metal, wood, ivory, mosaic work, glass, enamel, &c. &c. recently placed under the superintendence of Mr. Waring by the executive committee, rapidly assumes a definite form, and will, we trust, at last, successfully illustrate the various schools of art in connection with the materials above mentioned. Amongst the contributions may be selected some fine examples of Venetian glass, by Mr. Nicholson, of Doctors'-commons; some other excellent and remarkable specimens from the collections of the Earl of Cadogan, and Miss Auldjo, of Kensington. Mr. Goff, of Kensington, sends numerous fine ivory carvings, and Mr. Phillips, of Cockspur-street, an exceedingly beautiful ivory-carving, ascribed to Fiammingo; whilst amongst other pieces of elaborate workmanship, Lord Cadogan lends his celebrated knife of Diana of Poitiers, and several grand specimens of cinque cento bronze-work.

Mr. Addington, of St. Martin's-lane, contributes many choice examples of Majolica, Faenza ware, and Oriental and European porcelain, besides other valuable works. From the Tower, her Majesty's Board of Ordnance send a large and important contribution; and amongst collections placed at the disposal of the committee, may be mentioned those of A. J. Beresford Hope, esq. Baron Marochetti, Hon. E. Curzon, Danby Seymour, esq. M.P. the Rev. Walter Sneyd, Octavius Coope, esq. J. Mayer, esq. of Liverpool, and numerous other collectors, well known in the archæological and artistic world: we must not omit also to state that Sir Anthony Rothschild allows some of his very precious Henri Deux ware, to find a place in the Ceramic department.

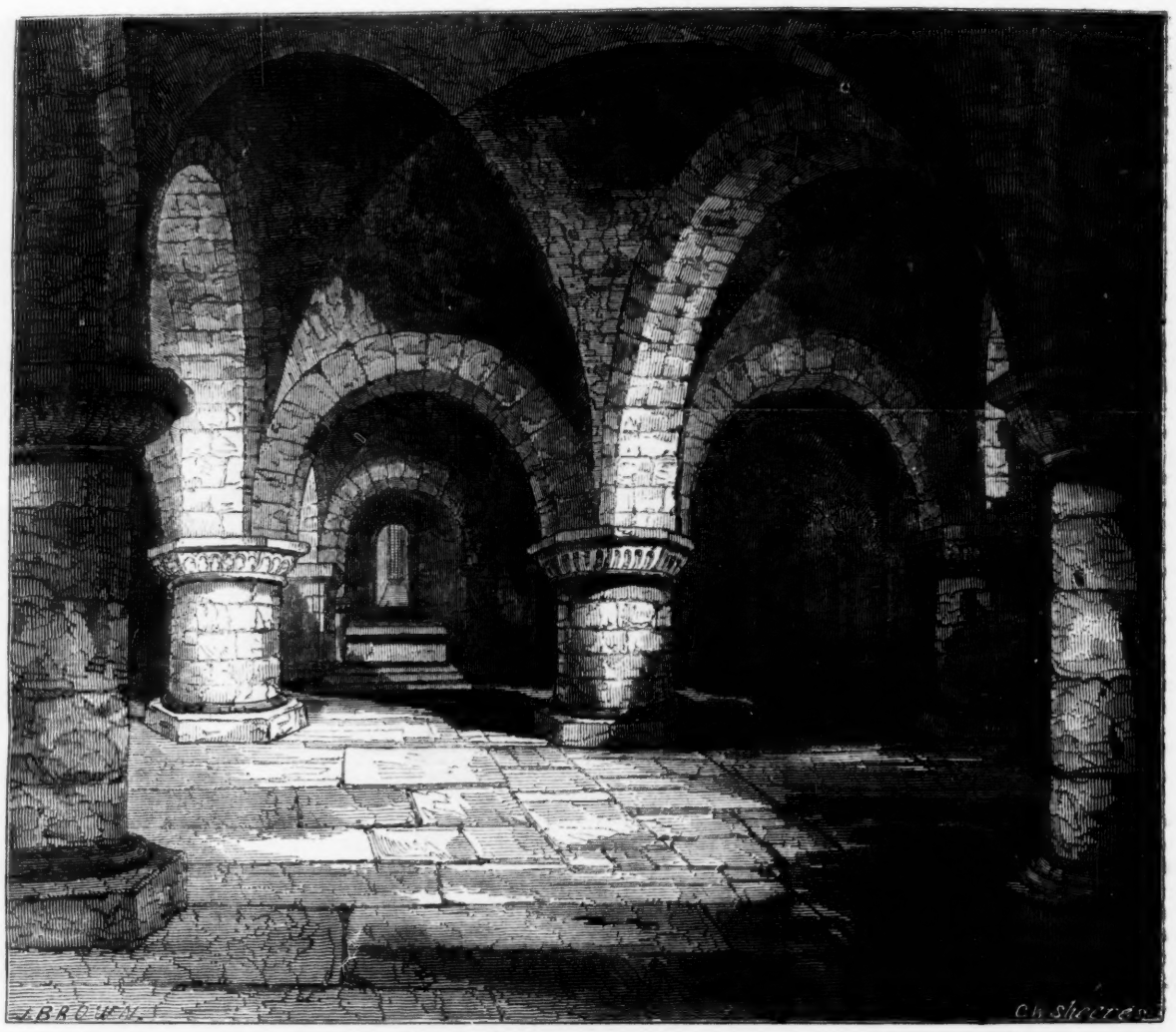
The committee, then, have good reason to thank the liberality and public spirit of our art-treasure collectors; and we think that when the importance of this exhibition on the public taste generally comes to be considered, they will have no cause to regret the inconvenience they may in some cases suffer, by becoming promoters of what is truly a national undertaking, and for a national purpose.

THE MAIN DRAINAGE QUESTION.

A DEPUTATION from the Metropolitan Board of Works have handed to Sir Benjamin Hall the new plan (B*) prepared in accordance with the suggestions of Captain Burstal. Sir Benjamin, in receiving it, stated that he proposed to nominate three gentlemen, two of them civil engineers, and one a military engineer, the most experienced he could find, to whom would also be referred all persons *who might wish to place plans before them*.

We may therefore venture to assert, with tolerable safety, that plan B* will *not* be carried out.

ART IN DECORATION.—On Thursday, the 18th December, Mr. E. Hall gave a lecture at the Streatham-hill and Tulse-hill Institution, "On Art, as applied to House Decoration and Furniture."



WESTMINSTER ABBEY: THE CONFESSOR'S CHAPEL, SOMETIMES CALLED THE PIX OFFICE.

OUT-OF-THE-WAY PARTS OF WESTMINSTER ABBEY.

Such of our readers as can avail themselves of the opportunity of attending the afternoon service in the venerable Abbey of Westminster, will be pleased with the striking effect produced by the numerous lights that are required in the dim twilight, which in these short days shadows the interior of the Abbey before the service is finished. The appearance of the vast place as thus seen is solemn in the extreme. We can, however, at present, only glance at this, and would direct attention to some of the nooks of the old church with which the public are not generally acquainted. Visitors to the Abbey may notice close to the entrance at Poets'-corner, on the left hand, the small pointed doorway which leads to the crypt below the Chapter-house, given not long ago in our pages. Farther to the west, in the south wall of the transept, below the dial of the clock, is a door opening into the curious chamber shown in the annexed engraving, which is called the Chapel of St. Blaise. It occupies the place of what is known at St. Alban's and elsewhere as the "slype." At the east end of the chapel are the remains of an elaborate painting of a figure holding a gridiron, supposed, therefore, to represent St. Faith; beneath which is the Crucifixion: there is also a monk at his devotions; and the remainder of the pointed arch is filled with red and other coloured zigzag ornaments, inscriptions, and devices; and although the original altar has been removed, the low elevation, with a peculiar circle in front, may still be traced. Near the altar, the wall, for several feet, is built at a different angle from the other parts of the chapel, and the symmetry of the place is still further interfered with by the pier of solid masonry which is shown in the engraving. The place is now so dark that it is somewhat difficult to see the various objects near the altar. There are, however, traces of two Early English windows which have formerly overlooked some space near the Chapter-house. The light now enters from some windows at the west end of the chapel, which are placed at a great height. In modern times a wooden staircase has been placed, leading to a sort of closet used by the canons as a robing-room, and which adds much to the deformity and darkness of the place. Part of the floor is covered with red tiles—some of square and others of diamond patterns. At present the chapel is lumbered with various matters; amongst them a large chest, in which were deposited the remains of Major André, who was captured and hanged as a spy during the American war, while carrying an important despatch to a portion of the British army. There is a monument to the memory of this young officer in the north aisle of the nave. There are also some fragments of old iron belonging to other parts of the Abbey, which will, no doubt, before long be restored to their place.

The other engravings of Norman masonry show, first, a portion immediately above the Blaise Chapel. This piece of the exterior of the former Abbey may be seen from the cloisters.

The semicircular arched passage leads from the north cloister, towards the Westminster school, and is of most massive proportions. From this passage is the entrance to the Norman crypt, which is used as the pix office, and is represented above.

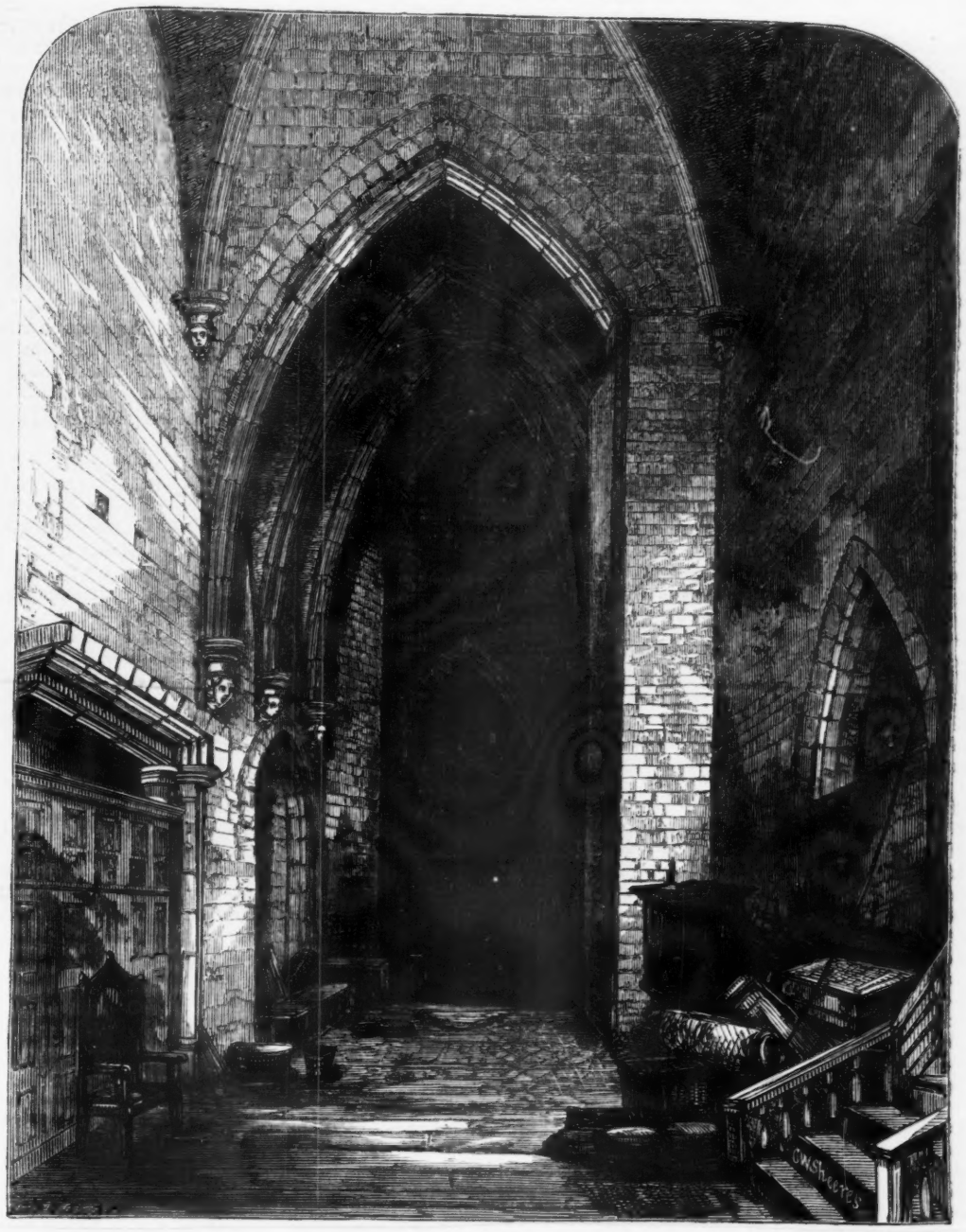
We recently made some remarks as to the small number of remains of Roman London, which exist in our days. The same may be said of Norman London, which, although constructed of durable material, and of comparatively recent date, has almost disappeared. The existing fragments of the latter period, above and below ground, would seem to be—the crypt of Bow Church, St. Bartholomew's Church, and a curious chamber below Lamb's Chapel, Cripplegate, the chapel in the tower, as fine a specimen of this style, and as perfect, as any remaining in the country; and at Westminster the Confessor's crypt, the cloisters, and part of the south transept. These, with a few unimportant fragments of not much mark, are, after "ye have sought ye cittie round," all the Norman work which meets the eye.*

The great rarity of these remains makes them the more precious to those who have a proper appreciation of such matters, and causes regret that the chapel in the tower is still hidden from the public. The crypt of Bow Church, filled with mouldering coffins, is not convenient of access, and the chapel of the Confessor is also invisible. This ancient place, curious in its proportions and details (as may be seen by referring to the engraving), has been for a considerable time occupied by the weights and other materials for the assaying of the coinage of the country.

It appears that the matters contained here are of very small bulk, and occupy but a fraction of the area of the crypt: it becomes, therefore, a subject for consideration whether or not, in the great building which has been recently raised for the uses of Parliament, some place equally safe as this portion of the Confessor's Chapel could not be contrived so

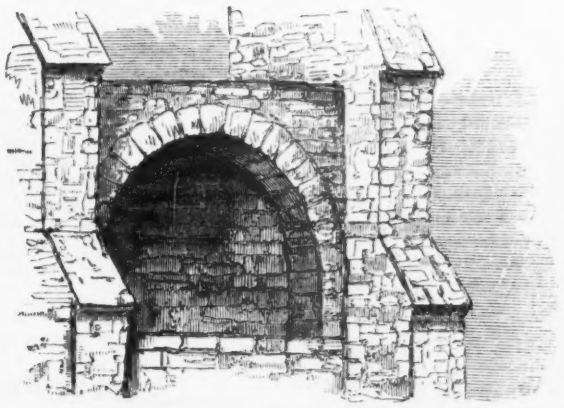
* There was inserted in the gate of Bermondsey a Cross, cut in stone, called the Rude of Bermondsey, with zigzag ornaments. On the removal of the gate these, with other fragments of great interest, were removed to the garden of a gentleman, and most likely made into a sort of grotto. We have, from time to time, made careful inquiry after these fragments, but have been doomed to a series of disappointments: perhaps, however, these remarks may fall under the notice of the possessor of these relics, a sketch of which we should be glad to have an opportunity to make.

WESTMINSTER ABBEY.



Blaise Chapel.

No. 1.



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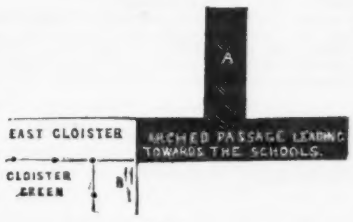

No. 3.

No. 1. *Part of South Transept.*

No. 2. *Ancient Cloister running east, marked A in the Ground-plan.*

No. 3. *Ground-plan of Cloister. The shadowed part is original. B. The Incised Memorials of the old Bishop.*

that the increasing numbers who are interested in such places as this should have the opportunity of access.

When lately looking into Cripplegate Church, in which rest Milton and other worthies, the custodian said,—"You would be surprised at the number of Americans who come here, and at the interest they take in the place. I have seen some kneel upon the stone under which it is said the remains of the poet are buried, in order to say, in their distant land, that they have paid this homage at the great man's grave."

The interest felt by the Americans in Westminster Abbey is as great, and perhaps more so than by many of us at home; and it cannot be without a beneficial use to extend the means of ready access to our important antiquities,—not only to those who, though now strangers, are so intimately connected with us, but also to the thousands who come from all the provinces to visit the metropolis: the sight of such relics of former times, as the Confessor's Chapel, and that in the Tower, cannot fail to be useful.

It is, no doubt, of great consequence, to keep the tests of the coinage in integrity, and without suspicion; and it is in consequence arranged that certain of the state ministers, the master of the Mint, some of the officers of the Goldsmiths' Company, and others, shall have keys, which, only by the assemblage of the whole, can give admission to the important deposit. This arrangement could be equally safely managed in another place,—*of far greater strength*, and more perfect security,—for it must be borne in mind that in 1303 the king's treasury in the cloisters was robbed of its contents, and forty-eight persons were sent to prison on suspicion, some of whom remained in custody for two years.

Let us hope that those persons in whose hands the management of these matters remains, will take into consideration the progress of the age, and not adhere too closely to old-fashioned notions, but hunt up a chamber, "clamped with iron within and without," the doors guarded by Chubb's and other locks, which would defy the skill of the lock-picker, and to that safe place remove the pix, and let us into the old crypt. Let public records also be shifted as soon as possible, from their rather unsafe position in the wreck of the Westminster Chapter-house; a place which might be easily restored, and be one of the finest specimens of English architecture.

It is only at certain periods that the Confessor's Chapel is opened for the purpose above mentioned, and in consequence we have not been able, although much trouble has been taken, to get a sketch of the crypt, but fortunately by chance came upon a drawing in the Guildhall Library: having compared this with other authorities in the British Museum, we feel that the view is tolerably correct, and will enable our readers to form an idea of this remnant of antiquity, which is completely hidden from sight.

TOMBS AT KENSALL-GREEN.

From the most remote time the artistic taste of nations has been to a considerable extent displayed in the monuments of the dead. What will be deduced by and-by from modern English tombs? We wandered the other day to Kensall-green Cemetery, thinking, by the way, of the vast Egyptian pyramids, of the monuments of Xanthus and Assyria, of the beautiful Gothic tombs of our own land, of the monstrous masses of marble clouds in Westminster Abbey, and the general appearance of our graveyards a few years ago. Nothing can well be more tasteless than the majority of the monuments of that time, and nothing worse than the condition and management of places of sepulture.

Passing under the archway, you find yourself among several hundreds of monuments, some of which are raised to the memory of the worthies of our own age. How few of them speak flatteringly of our taste in art! The visitor in search of information will not be able to gather much from the custodians of the place, and therefore it is better to walk on. You soon meet with familiar names on the tombstones. There is that of John Smeaton, the engineer to the London Docks; and not far off is a stone placed by subscription to the memory of Edward Scriven, an engraver, who projected and assisted in carrying out a most excellent plan for the benefit of his class. The inscription states that "an instance of severe distress having occurred to a member of his own profession, he directed the force of his benevolent mind to the foundation of an institution among the professors of the fine arts to obviate such calamities. Thus, with the effective aid of those he called around him, was founded, in the year 1810, 'The Artists' Fund.'" As we pass slowly along many familiar names of publishers and of others who in their lifetime were well known, are met with. These records are made in various ways. On one tomb is—

"Pain was my portion,
Physic was my food,
Groans were my devotion,
Drugs did me no good."

And this in our own century! Some of the inscriptions are put on the shaped stones which were so common a few years since. Some have the head, cross-bones, and other rudely-sculptured devices in fashion a century ago. The taste, however, seems to lean towards the Greek and Roman forms. There is a very simple monument of the latter style to the memory of Lord de Ross; this is of stone, with a white marble slab inserted for the letters. The stonework in many instances is relieved by plants and flowers; some graves are covered with the "forget-me-not;" on few is the honeysuckle; some are surrounded by palings, overgrown thickly with ivy; others are shrouded in and hidden by a little grove of evergreens. In the middle of one grave has been planted a Scotch fir of 20 feet or 30 feet in height. It is curious to notice the various styles of the legends. Here is the family vault of a person who is as methodical in his gravestone as he would have been in his ledger:—

"J—— H——, born ——, died ——.
T—— H——, ditto ——, ditto ——."

One stone overgrown almost with roses has only MERCY upon it. Here lies a celebrated cricketter, the stone placed by his playfellows; and there, not far off, a famous optician. On some stone tombs, a white marble book has been inserted, on which are inscriptions, such as "Ye know not the hour." In some instances a sculptured hand is pointing to the book.

Crosses of different forms, often of marble, are common. Some of these and other expensive monuments have no inscription at all upon them. One has—

"Thomas ——.
Jane ——."

No date of birth or death.

To atone for little eccentricities there are some pretty little bits of sentiment. On the grave of a young wife there is a rose, scarce blown, cut from the stem by a sickle; a drooping lily appears on that of a young girl; and a chaplet of "everlastings" on the monument of "*our dear sweet child*."

In the chapels and in the various avenues which adjoin them, there are long rows of black and white marble records, most of which are quite common-place. In one of these spots there is an old-fashioned wooden-cased clock; the pointer denotes an hour, but it seems to have been long since it was there fixed. We look in vain for anything to interest in those monumental rows, and are glad to get forth again into the sunshine, and leave the remains of those who have preferred the vault manner of burial.

Outside is the tomb of the Princess Sophia, a large erection, surmounted by a sarcophagus, coronet, &c. and which has a stately and sumptuous appearance. Not far off is the grave of the Duke of Sussex, covered by a plain, well-designed tomb of granite. A few yards off is a new monument, similar to the above, which marks the burial-place of a consistent and useful public servant. The inscription is—

"Sacred to the Memory of
JOSEPH HUME,
Member of Parliament for nearly forty years;
Born at Montrose, N.B. Jan. 22, 1777;
Died at Somerton, in Norfolk, Feb. 20, 1855.
Keep innocency, and take heed unto the thing that is right; for that shall bring a man to peace at the last."

Smirke, the Royal Academician, has for a memorial a plain squared-up stone of large size, which, by its simple and permanent appearance, contrasts in a remarkable way with some of the ambitious designs which are not far off. Here is one at which we must stop,—that of Loudon, the accomplished and industrious naturalist and journalist, who from a humble condition rose to be a benefactor to the country. This monument consists of a pedestal of polished granite, on which, after the name, it is recorded that "his works are his best monument." We must look over the conceit of rough and unhewn masses of rock, with little bits of polished marble set into them, and some other things, and pass to the grave of a man known through the length and breadth of the land—"Tom" Hood, who has sung with such emphasis on behalf of his suffering fellows. This is one of the most satisfactory in the grounds. The pedestal is of polished granite, at the top of which is written—

"He sang the Song of the Shirt,"

and below—

"In memory of THOMAS HOOD,
Born 23rd May, 1798,
Died 3rd May, 1845.
Erected by public subscription," &c.

Below this is a bronze comic mask, with a lyre and other things. On the sides are medallions, also in bronze, representing a passage in the "Bridge of Sighs,"—

"One more unfortunate,
Weary of breath,
Rashly importunate,
Gone to her death."

Above this is the bust, in bronze, of the poet, of somewhat colossal size, beaming with intelligence and kindness.

There are some ambitious tombs in the Egyptian style, which turn out to be only shells of brick covered with stucco: some of these have knockers upon the doors! We have before now spoken of the ponderous coxcombry of the Ducrow and Soyer monuments, and need not return to them. Few attempts have been made to preserve the image of the persons buried in these grounds, and the attempts at sculpture of any sort are for the most part failures. There is plenty of room for improvement in our funereal memorials.

THE ARCHITECTURAL ASSOCIATION.

THE following reply, signed by the honorary secretaries of the Association, has been returned to the last communication from the Institute of British Architects:—

December 18th, 1856.

GENTLEMEN,—On behalf of the committee and the members of the Architectural Association, we have the honour to lay before you the following reply to your communication of the 30th October last, on which the Institute did the Association the honour of requesting an opinion. The committee, then, express the opinion of the Association generally, after full discussion of the question, in saying that they do not regard the establishment of the proposed class of graduates as likely to prove a measure of utility to the profession, and particularly to that class for whose benefit it is designed, or to conduce to the main object of the Association, viz. the improvement of the means of architectural education. But, in their opinion, these objects might be advanced, and important results ultimately attained, by the adoption of a principle they have much at heart, and to which they would earnestly solicit the best consideration of the Institute. They would AGAIN propose the institution of examinations, founded on certain acknowledged principles and well-defined courses of study. The passing of these would become an honourable distinction, and consequent incentive to exertion on the part of those entering the profession. The committee feel confident that the adoption of the principle contained in their proposal would not only be productive of great advantage to those who would immediately profit by it, but would also eventually add to the influence and consideration of the Institute itself. They desire to obtain the creation within the body of the Institute of a class owing its position, not to arbitrary professional distinctions, but to intellectual qualifications only. Should they be successful in their object, they are of opinion that many of the profession who now hold aloof would at once enter the ranks of the Institute, and that a great step would be taken towards that general union of the profession which the Architectural Association earnestly desires to assist in effecting, when it can be done with advantage to those it represents.

In conclusion, the committee beg, in the name of the Association, to acknowledge the courtesy which has afforded them the opportunity for expressing these opinions, and to assure the Council of the full sense in which the Architectural Association regard it.

THE NORTHUMBERLAND WINDOW AT ALNWICK.—The window in memory of the late Duke of Northumberland, for St. Paul's, Alnwick, has been made at the royal manufactory at Munich, and put up in its destined place. The subject is Paul and Barnabas preaching at Athens.

REMARKS ON FARM BUILDINGS AND STABLES.

A PAPER on this subject was read in October last, at a meeting of the Liverpool Architectural Society, by Mr. Charles Verelst, as we mentioned at the time. In the course of it the reader said improved farm buildings did not depend entirely upon the tenant, who was often unjustly blamed for their defectiveness. The landlords had much to do with this, and there was the difficulty; for though he believed they were generally upright and intelligent, they frequently had their hands tied by settlements, jointures, debts of their own or those who preceded them, too often mortgaged up to the neck, and were, therefore, unwilling, and frequently unable, to effect those sometimes costly improvements which every tenant had a reasonable right to possess, and without which no tenant could effectually get on. He proceeded to lay down that labour was the great outlay of the farmer. Whatever, therefore, was saved in that, became a serious gain. Thus the site should be as near the centre as the nature of the land, vicinity to the high road or station, would permit, or, at least, as near the centre of the arable land as possible, by way of saving cartage. If a railway be near, a tramway therefrom will be no mean saving when near a town, for bringing manures and removing produce. The hay should, of course, be near the stables, the straw near the foddering yard, the roots near the boiling-house and stall-fed cattle, and the whole in close contiguity, and planned in such a manner that every part should, as much as possible, radiate round a centre, from which everything should be supplied. Above all things, there should be good and ample shed room for stock; and few things are better demonstrated than the improvement that occurs in cattle that have warmth and repose, so that chaff and other food should be steamed, at least occasionally—for with warmth less food is eaten, with repose more flesh is obtained, and with even temperature and abundant ventilation good health is maintained.

Assuming the farm to contain about 400 statute acres, the list of requirements for one of a first-rate character would be something like the following, viz.—a stack-yard; a barn of two stories, containing, on the ground floor, a corn and a chaff room, and above, a granary, &c.; engine-room and coal-house; stabling for twelve cart-horses; loose boxes for invalid horses, stallions, brood mares, &c.; stabling, loose box, harness-room, and gig-house, for the farmer's own use; root-stores and a boiling-house; cattle-sheds in a double row for (say) sixty beasts; cow-houses for (say) twenty cows; calf-house; bull-boxes; sheds for heifers, grazing cattle, or young stock, open on the south towards a yard; sheds, pens, and yard for sheep; lambing-house, slaughter-house, extra shed for sick cattle, waggon and large implement shed; tool and small implement shed; smithy, wheelwright's shop, and timber-yard; one or more dung-pits, and one liquid manure-tank; compost-shed for mixing artificial manures; piggeries; poultry-houses for hens, guinea-fowl, ducks, turkeys, &c.; coal and wood houses; dove-cot, dog-house, and privies; a well, rain water, cisterns, &c.

There are some other requisites, but which would rather appertain to the farm-house than to the farm buildings, such as the dairy, churning-room, scalding-room, shed to expose the dairy utensils to the sun and air; and, lastly, a cheese-room; whilst in many places a brewery would be necessary.

In a set of drawings exhibited Mr. Verelst showed that the general principle was that of a cross, the barn forming the top or north, the beast-houses the south, the cart-stables the east arm, and the young stock-shed the west arm. The open spaces between the arms were inclosed by sheds on the east and west sides, and by a low wall on the south side. Thus each of the yards was open to the south, and protected from the north, east, and west winds. On the outside of the buildings was a road 15 feet wide, running round the four sides, so as to facilitate the deposit of carts, implements, manure, &c. and the removal of the manufactured produce.

The Stackyard should be to the north of the farm buildings. In some farms the whole of the stacks were erected under a lightly framed wooden roof, which allowed of their leisurely removal, secured them from wet, and saved thatching. If iron wheels were added to the frames under each stack, and a tramway made, they could be drawn up to the north side of the barn, and thrown direct into the feeder of the thrashing-machine. The stacks might be brought up by horses, or by the stationary engine.

The Barn.—This should be as central as possible, and so placed, with reference to other buildings, as to enable a man to go therefrom into stables, beast houses, sheds, &c. with the least inconvenience in regard to time or labour, and without having to go out of doors. For a farm of this size, a stationary engine and thrashing-machine should be employed, so placed that, the stacks being drawn up by it, the straw would be put direct into the feeder (by aid of an elevator, if necessary), passing out winnowed to the other side, the corn depositing itself in one room below, and the straw either in another room below, or thrown by shakers to the loft over the cattle, which would be 2 feet lower. This upper barn would contain hay and chaff cutters, depositing their cut material into receptacles below; oat, corn, linseed, oil-cake, and bean crushers, meal grinders, bruisers for various kinds of food, and other machines, the whole worked by the steam-engines, thus sparing horses for other work, necessitating fewer of them, besides doing the work quicker, cheaper, and better. This engine should, in fact, perform likewise a large portion of the work outside the buildings, such as pumping the cisterns full from the well, &c. In the plan, at the intersection of the cross, were a trap-door and tackle for hoisting up and down sacks, &c.

Root Stores and Boiling House.—The same reason of centrality, guiding the position of the barn, governs that of the root and boiling houses. In the plan herewith submitted they adjoin, and are nearly equidistant from, all the feeding places and yards, and the roots can be taken, after being steamed, without going more than a few yards, or at all out of doors. They should be flagged, whilst the root-house might have low brick divisions for turnips, mangolds, potatoes, &c. with wide sliding or folding doors, that a cart might be backed in and upset. The boiling-house is best not to open immediately into the root-house, lest the roots should become affected. There should be boilers, steamers, tubs, &c. for the use of stables, piggeries, or occasionally for preparing seeds of any kind. There should also be a root-washing machine, worked by steam, and a place for wooden shovels, &c.

Cart-horse Stables.—These contained twelve stalls, which, looking at the labour saved by the steam-engine, would probably accommodate a sufficient number of horses to work the 400 acres. He (Mr. Verelst) had paid attention to the subject of stables, and considered that a width of 16 feet was the least that could be permitted, but he preferred 17 feet for single stables. He objected to double stables, but, when used, he considered the total width should be 26 feet at least. No stable should contain over twelve horses. Single ones were best lighted by windows at the back; double ones by skylights along the ridge. It was better to have regular stalls, with boarded divisions; but as this expense was often objected to, bales (that is, poles hung by short chains at each end) were used; but in that case there should always be a contrivance, that if a horse got under the bale, it should lift itself off. Two horses should not be in one stall. The width of stalls was constantly too narrow. The horse often sprawls and stretches as he lies down, and does not tuck himself in, as the cow does. The size of a cart-horse is about 8 feet 6 inches long, 2 feet 3 inches across the quarters, and about 6 feet 6 inches high, to the top of the head. The least width, therefore, that should be given to a stall, is his own height—that is, from 6 feet to 6 feet 6 inches.

He considered the ordinary range of hay-racks and trap-doors over as highly objectionable. It compelled the weary horse to raise up his head to a considerable height, whereas the form and length of his neck showed that nature intended him to take his food from somewhere near the level of the ground. The trap-doors, over the old hay-racks, allow the seeds and dust to get into his eyes, whilst, as the traps are often left open, the horse frequently catches cold from draughts, and the hay above is injured by the foul air from below. The advantages of crushed corn have been abundantly demonstrated to be equally healthful and more economical, but the old-fashioned long mangers and internal angles prevent his getting at much of it. He therefore proposed, and generally used, cast-iron mangers with rounded bottoms, water-troughs, and racks, all secured by a single cast-iron top plate, not more than 2 feet 9 inches from the ground, nor much less, otherwise there would be a risk of the horse, in times of excitement, getting his foot over. The rack should be on one side, the manger on the other, and the water-trough in the middle; and the two latter should be enamelled, to prevent their becoming fusty or sour. Underneath should be screws, to admit of their being cleaned, whilst a half-inch pipe, with nozzles to each trough, can fill the whole with water simultaneously. This principle might apply to all the horses, cows, bullocks, young stock, pigs, and poultry, upon the whole place, by the turning of a single tap. It is found that horses which have water constantly before them drink no more, nor even so much, as those which only get it occasionally, and which become greedy from fear of losing it. But they are very fond of cooling their muzzles by frequent paddling in it. If it were necessary, a wooden lid could easily remedy this point. In some stables, I have heard of there being no racks at all, as steamed or bruised food alone was used. In order to supply the hay, a cupboard, either in a corner or got externally, is provided, and down that the hay is thrown from above, whilst a door is opened below, the hay taken, and by a fork thrown into the low rack. Iron drawers under the manger are still provided by some ironfounders, to catch all the hayseeds, and this is an economy. On the front of the top plate may be a revolving roller, but double chains are unnecessary to cart-horses when separated by solid divisions between the stalls. Over the mangers he had constantly used a single slab of slate, 2 feet 6 inches high, and the length of the stall, which, in a very simple way, prevented crib-biting. The end stall division may be made movable, so as to join to the last but one behind the stalls. It then makes a good large loose box when required. In a cart-horse stable, instead of iron heelposts, wooden ones may be used, as they assist in supporting the floor above, and admit the rings for the pillar reins being put at their proper height.

The slope of stalls from front to back is generally too much; it fatigues a hard-working horse, by throwing his weight too much upon his hind legs. The floors of stalls should slope from the sides to the centre; whilst the fall from front to back should not exceed 2 inches. The best flooring for stalls is Dutch clinkers on end; the next best substitute, a certain kind of indented brick from Buckley Mountain, made on purpose; and one of the worst is red stone, its porosity retaining urine and damp; whilst the ammonia is unhealthy. For the space behind the stalls he had used rough 3-inch Yorkshire flags, which can always be kept clean. Instead of open sunk channels behind the stalls, a better way was to have all level, but a good sunk drain under, and behind each stall an iron stench trap, with a slight incline thereto from every side. Iron stench traps, or any other gratings, should never be covered with bars: they are weak, apt to break, and sometimes catch the heel of the shoes; flat-iron tops, hollowed, and full of holes, are best.

The height of a stable should be as much as 12 feet, if it have a flat ceiling. In no place is ventilation more required, or less attended to, than in cart-horse stables. The horse is a bulky animal, and throws out much that is injurious in his breath, skin exudation, manure, and urine. Thus, upon entering the majority of stables the first thing of a winter's morning, you are almost knocked down by the heat and ammonia, so utterly different to a state of nature. A hot atmosphere, with its adjuncts of fetid atmosphere, produces directly or indirectly an endless series of ills; but a warm, and at the

same time well-ventilated one, promotes health, strength, and spirit for work, manure of a higher quality, and saves those expensive and doubtful individuals, veterinary surgeons. The best temperature would probably be from 60 to to 65 degrees; this and ventilation are the grand desiderata. To obtain the latter, he had adopted the principle of sliding gratings, with a clear 100 superficial inches of open area, fixed in the back wall near the ground, and behind each stall. To carry off this he used, in the centre of the ceiling, one or two hoppers, according to the number of horses, continuing by a wooden trunk from the stable ceiling through the hayloft and the roof, and terminating on the roof outside with a zinc covering. These trunks should have a superficial area equal to the quantity of air let in, according to the number of stalls. Now, as the ventilating gratings near the floors, and the hoppers, would have the power of regulation, the actual quantity of ventilation would always be according to the number of horses in the stable. Before each ventilator and hopper should be placed perforated zinc, to divide the air into minute currents.

Whilst light is healthy and cheerful, too much causes horses to be wakeful. A moderate degree of gloom conduces to the repose of the weary cart-horse; windows, therefore, should neither be too large nor too numerous.

Great condensation takes place upon the glass of stable windows, which, falling down, rests upon and rots the wooden bars. There should be no horizontal bars, but the glass should overlap, like that in conservatories Stable sashes are best hung on centres; sliding or hanging sashes stick, and get out of order.

Stable doors should be 9 feet high and 4 feet 6 inches wide, with no projecting locks, handles, or fastenings; all should be flush, to prevent the horse hurting himself or the harness catching. To a cart-horse stable the door may be in two heights, that the top may be open in hot weather. The sill of the door should never exceed 2 inches high. A cart-horse stable should only be whitewashed. A regular nag stable may be plastered, and boarded 4 feet high. There should be shelves, recesses, or cupboards for brushes, cloths, combs, &c.

In the loft above, and nearly against the centre of the back wall, should be chests, divided for corn, beans, &c.; lined with iron to exclude mice, raised three inches from the floor to prevent rot, and always kept locked. From these should descend, into the stable below, trunks and double slides, containing exactly one feed. These prevent waste, secure equable quantities, and by lasting a certain time show if robbery has been attempted.

Bullock Sheds, Cow and Calf Houses, and Bullock Boxes.—These should be near the root stores and boiling-house, and are more economical to build and work with a foddering passage down the centre. This last may have a tram-way and simple turn-tables, or be smoothly flagged, so that a low truck on wheels with rounded tires may easily run down the passage, distributing, by outrigging feeders, the food to the beasts on each side. Over this foddering passage, in the floor above, should be long, narrow, open slits, 18 inches wide, by which simple means hay and straw may be let down at any point required. The width of a single bullock shed, exclusive of foddering passage, should be about 15 feet, and the space behind of good width, to facilitate the removal of the manure in trucks. Each bullock should be separate, and as he is about 8 feet long, 5 feet high, and 2 feet 8 inches across behind, the width of his stall should be 5 feet; but if two are put into one stall, the width should then not be less than 8 feet. To each stall should be separate troughs for food and water, the former of stone, the latter of cast iron, enamelled on the inside, and supplied with water simultaneously, and nowhere more than 18 inches high.

The divisions are best made of slate, or York flags, with iron rods for the chains round the bullocks' necks, to slide upon; but where slate or stone is difficult to be obtained, recourse must be had to oak or Baltic divisions, with oak or teak posts for the chains to slide upon.

Behind the stalls there should be an open gutter, not smoothly dished out in a single stone, but square, 14 inches wide and 2 inches deep, the object being to prevent the bullock sliding about upon his own unctuous manure, by the square sides of the gutter. Beneath this open gutter should be the drain for the liquid manure, which should fall through gratings or perforations in the bottom of the open gutter. The stalls, like those of horses, should slope slightly to the centre, and that to the gutter behind. Asphalte for floors here should be avoided, as being dangerously slippery, but a concrete of lime and gravel forms the best.

Outer walls 4 feet high, with moveable luffers above, like those round a brewer's vat, have been recommended, but it is thought these must be too cold in severe winters. Windows with glass, and outside luffer shutters, admitting light in moderate quantity, most contribute to warmth and repose. Venetian blinds, or even nets of small meshes, will prevent insects from entering. Where the bullock sheds are open to the roof a simple mode of ventilation is by two air-bricks behind each beast, and the slates laid by omitting alternate slates, and without tiering: but where a loft is above the bullocks, then the same mode of ventilation may be adapted as to the stables, but increasing the power of extending and regulating the quantity to at least double. The height of these sheds, when of one story, may be 7 feet 6 inches from floor to bottom of eaves; but if there be a loft above, then the height should be 11 feet from floor to ceiling.

Hitherto only stalls have been spoken of, but some high farmers use boxes 10 feet square for single ones, and 12 or 14 feet square for double ones; but it may be a question whether beasts would not be fattened as well and as soon in good separate stalls as in boxes. In Holland, Belgium, and Switzerland, where animals always tied up has long been the system, stalls, and not boxes, is the principle adopted.

Other refinements had been adopted, such as sinking the floors 3 or 4 feet below the ground, and, by gradually elevating the feeding troughs, allowing the accumulating manure to raise the animal up to a level with the surface of the ground. Huxtable praises sparred floors, and Mechi's bullocks may be seen, with well-dunged coats, slipping about on boarded floors; but all this perpetual existence of animals over their own ordure seemed so contrary to the order of nature that it has not been gone into here.

Large and Small Waggon and Implement Sheds.—They should always be of ample size, and of such a height, say 18 feet, that one or two loaded waggons can enter and remain there for the night, secure from rain and ready to start betimes in the morning for market. They should face the north, to prevent the sun affecting the wooden materials inside; and be near the stable, for speedy and convenient harnessing. The roof should always have an extra projection of a few feet, to prevent the slanting rain from entering. At one end should be the drill or tool-house, not alone for tools, but for those implements that take to pieces, being only used at harvest or other annual periods.

Piggeries.—Where a very large number of pigs are kept, it is best to have a central passage, with iron or wood hanging sheets, whereby the troughs can be filled without the feeder being interfered with, with a separate store shed, and a boiling apparatus for them alone. The hog has been undeservedly abused for his love of dirt; but if a wet and dirty sty were placed beside a dry one, clean and full of straw, it would soon be seen that he preferred the clean and dry. His occasionally wallowing in dirt possibly arises from a certain scrofulous habit of body he has, rendering such an operation agreeable to him for the time. It has somewhere been tried to wash and scrub him daily, when it was found he was not only cleaner, but fatter and healthier by the operation. Above all, he should be warm as well as clean and dry, and, in winter time, a swing door, hung upon its upper edge, aids him, and he soon understands how to obtain ingress and egress by pushing the door with his snout. The reader rejected the idea of a boarded floor, or of raising himself up on his own dung, though perhaps the pig alone, of all animals, could exist with health in the filth and foulness of his own atmosphere. A door from his house enables him to roam about a yard appropriated to him and the fowls alone. In order to admit ventilation and avoid smell, instead of close walls round the pig court, open tarred fences have been recommended. Troughs of any kind should always have several compartments. The best flooring is a good hard concrete.

Where the district abounded with stone, of course rubble walls would be found cheapest, but the strongest and best are of brick. These should be hollow, for lightness, dryness, and the very great facilities they afford for a perfect system of economical ventilation. All bricks should be laid in "English bond" of alternate courses of headers and stretchers; all interiors should be pointed, for the healthy and cleanly practice of frequent whitewashing. All corners should have rounded or "bull-nosed" bricks. Walls may be coped with rounded bricks pointed in cement, and be kept dry by a course of slates through them at the level of the ground. English oak, though apt to split, is the best of all timber for agricultural buildings, but difficult, in some places, to obtain; the next best, therefore, and the cheapest in the end, is Baltic, and the worst, white or spruce deal. Wooden posts should rest on stone blocks, sloped every way from the bottom of the posts. External woodwork should be painted every three or four years, and all fences tarred. The cheapest, best, and simplest covering for roofs is the pantile or slate, according to the locality. The blue pantile at Trentham, the seat of the Duke of Sutherland, is made to have almost an Italian character.

Barn and large doors are simplest when they slide or hang on rollers, and most out of the way, but they should open in the centre. With ordinary large doors it is sometimes an advantage not only to open perpendicularly in the centre, but even to have them open in two heights; they hang lighter and last longer. All doors on hinges should be made to lie back flat against the wall, should be flush with the riser of the step, and have weather-boards, which together prevent the possibility of wet coming in at the bottom.

ON THE DRYING OF OILS FOR PAINTS AND VARNISHES.

An important paper was read at the Society of Arts on the 5th inst. by Mr. Christopher Binks, "On some new Methods of Treating Linseed Oil, and other Drying Oils, for Improving their Drying Properties, in their application to Paints and Varnishes." Want of space alone has prevented us from largely quoting from this paper, although we have already very fully treated of the subject in a series of articles in our volume for last year;* but we shall now extract the most important portion of Mr. Binks's paper, giving the main results to which he has been led by a numerous series of inductive experiments, undertaken without any reference to *à priori* theories or hypotheses, or rather in the face of these; but, as we shall endeavour to show, only confirming, in all probability, the truth of the researches (recorded in our last volume) by Chevreul, made some years since, and indeed, the empirical practice of the trade at large long before Chevreul's time,—advancing an important step, however, upon the results of these researches and of that practice, by an original discovery, of a kind (as we think) to whose true chemical nature Mr. Binks does not seem to have made any explicit allusion in his paper, wherein, on the contrary, he urges reasons for his results of the very opposite description to those of Chevreul and the trade, and to those, we suspect, which will ultimately be found to be the true reasons, after all, of Mr. Binks's own important results. These results and deductions are thus summed up:—

"Now, the practical results of this long course of experimenting were, first, the discovery of certain materials or forms of materials never previously so used, that exercise specific drying actions upon the oil. Next, to show how very few of all those resorted to experimentally exercise any drying action at all. Then to reduce even these few to two or three, whose properties fully admit of their use for all practical purposes; and, finally, to demonstrate what the kind of action really is that thus issues in the solidification of the oil.

It was discovered that the *hydrated protoxides* of certain metals pre-eminently exercise a specific drying action on

* *Vide* vol. xiii. pp. 109, 193, 243, 373.

he oil. That it proceeds in the *cold* with sufficient rapidity to render the aid of heat not necessary, though the application of heat quickens, and is expedient in the operation. The hydrated protoxides of iron, of nickel, of cobalt, and of manganese, are the most remarkable of the class; but it is through the latter (*i. e.* the *hydrated protoxide of manganese*) that all the singular and happy effects upon the oil are to be practically accomplished.

Linseed oil in its normal condition—*raw* oil—does not dry *per se* under fifty hours. In this, its normal state, it appears (as it may be expressed) to exercise a certain power of resistance against external influences, that would tend to disturb its equilibrium, and transform it from the fluid to the solid state. It yields to these influences only after a few days' struggle, as it were. Now the hydrated protoxides, just mentioned, by mere contact with the oil in very minute proportional quantities, at once break through this state of equilibrium, or power of resistance, and the oil thereupon begins at once to dry; that is, this contact *initiates* the action or series of actions, or removes some obstruction against their exercise, and these then proceed with all the rapidity that unimpeded external or internal influences are capable of. This peculiar action of these hydrated oxides is analogous to, but by no means chemically identical with, that of *fermentation*, that with saccharine matter is *initiated* by addition, in minute quantity, of the fermenting agent, and which then, without further addition, proceeds to completion. The addition to the oil of only from 3 to 5 parts of the hydrated protoxide of manganese to 1,000 of the oil, gives birth to these peculiar changes; and by the simplest of methods of after treatment, this chemical fact is made applicable to the production of any required kind of drying oil.

It is scarcely necessary to remark that this *hydrated protoxide* is, in every respect—in its mode of application, action, and results—different from the old *peroxide*, which at ordinary temperatures exercises no action whatever upon oil. Whilst the latter is used to *give* oxygen to the oil, the property of the former is to *abstract* it. The protoxide is a powerful deoxidising agent; and had the writer been guided by the old theory of *giving* oxygen to the oil, the hydrated protoxide would never have been tried, nor, probably, these curious results obtained. The manganese protoxide is selected out of the others having a similar specific action, because of the peculiar property it alone has, conjointly with its powerful drying action, of *bleaching* the oil finally. The iron oxide gives to the oil a permanent brown stain; the cobalt, a reddish; the nickel, a greenish tinge; and the manganese oxide is readily and cheaply obtained through the medium of the beautiful rose-coloured salt, the crystallised sulphate of manganese."

In this account of his "Results and Deductions," however, there is, strange to say, a very remarkable omission, which Mr. Binks afterwards proceeds to supply under a new heading,—that of the "Manufacturing Arrangements and Products." The omission in question is to the effect that in the manufacture there must be "a contrivance for passing into the oil *a large volume of atmospheric air sent into it by a double-actioned air-pump.*" If this be not for the purpose of oxidizing the oil, what *is* its chemical purpose? Mr. Binks himself admits "the necessity of reactions with oxygen," but the simple question which presents itself here is just this,—*is* the oil oxidized by the process, or is it *not?* And surely this might have been ascertained by chemical analysis, of which, however, there is no trace, and without such analysis Mr. Binks's experiments are quite as empirical as those he charges against almost every one else. The reactions *may* be very complicated, as he imagines, but if oxygen *be* added to the oil it will finally speak for itself in the analysis: and, if not, the negative will be no less decisive, for not only will the oil *not* be oxidized, but, if we understand Mr. Binks aright, it is positively deoxidized, a supposition (as it still seems at best to be) which would be equally converted into a certainty or a fact by analysis of the oil before and after Mr. Binks's process was applied to it.

It is a circumstance quite remarkable that *the* substance beyond all others used, which Mr. Binks has proved inductively to be the best for drying linseed oil, should be an oxide of manganese; for Chevreul, too, found that *an* oxide of manganese could be "used with great effect," and *that* oxide of manganese has long been well known and used as a drier. This we say is remarkable, and, what is more, is greatly to Mr. Binks's credit as an original experimenter and a stern and true inductive philosopher, inasmuch as there may be said, metaphorically speaking, to be all the difference in the world between the two oxides of manganese so used. The oxide of Chevreul and the trade is the peroxide, which readily gives up a certain quantity of the superabundant oxygen perched loosely upon it, while the oxide of Mr. Binks is the protoxide, which may be said, on the contrary, greedily to devour oxygen, or absorb it *from the atmospheric air* and various other substances. Mr. Crace Calvert, in a communication to the *Journal of the Society of Arts*,* claims for Chevreul the use of "oxide of manganese" as "the very substance" Mr. Binks "recommends to impart to linseed oil rapid drying properties," whereas it must be admitted that it was the peroxide of manganese which Chevreul treated of as an oxidizer of the oil, not its protoxide; and the difference in power and property between these two is so great as to countenance Chevreul on the one hand in attributing *oxidizing* power to *his* oxide, and Mr. Binks on the other, *à fortiori*, in ascribing *deoxidizing* power to *his* oxide. But if it can be shown to be at least *probable* that both oxides may have really the same kind of influence on the oil (the result being similar), with this difference, that the protoxide is the more potent of the two, we shall of course have gone far to clear away all obscurity and difficulty. Now, if both *do* exercise the same sort of influence on the oil, we cannot see how that influence can be a deoxidizing one, inasmuch as the peroxide probably contributes oxygen to the oil, and at all events cannot withdraw oxygen from it or deoxidize it; whereas, on the other hand, we *can* see (as we shall now endeavour to show) how the influence even of the *protoxide on the oil* may also be an oxidizing one, *although its influence on the large quantity of atmospheric air mixed with the oil must be a deoxidizing one.* There is a chemical process of modern discovery called catalysis, which has been thus explained in just such cases as this:—The catalytic agent, in a case of this kind, to be an oil oxidizer, *must* be one with a pretty strong *affinity for* oxygen, but so *modified by its position, while lubricated by, or solved or suspended in, the oil*, that, on the one hand, as it absorbs oxygen from the infused air, on the other it will hand it over to the oil, thus, it would appear, favourably placed for undergoing this oxidizing process, by aid of the oxygen-condensing power of the drying or oxidizing agent; the manganese at same moment, by a renewed play of its affinities, resupplying its own requirements, by condensing and re-absorbing another doze of oxygen from the infused air, only to be also handed over to the oil, while it simultaneously replaces this condensed doze also from the air, the final result being, that the protoxide, while it has powerfully aided in the combination of a large quantity of oil with the oxygen of the infused air, remains in *statu quo*, or, at least, issues out as the deutoxide, a minor one even still to the peroxide; and, moreover, that a small quantity of this oil-oxidizing agent will suffice to *hand over* an immense quantity of oxygen, or to oxidize an immense quantity of oil, notwithstanding the relatively small quantity of oxygen at any one moment existent in itself, or even the positive and strong tendency of the metallic base of the oxide to absorb rather than to contribute oxygen. This, we say, is a free but strictly accurate account of what a catalytic agent is chemically believed to do in certain circumstances similar to those in question, but the only allusion which by any likely mode of interpretation can be construed into a recognition of catalytic action by Mr. Binks is what he says as to its being like a fermentative process. Now, the catalytic action has been compared to and even regarded as a fermentative process, but let us remember that in this case that fermentative process is only or best explainable as an *oxidous* fermentation, or a process whereby the oil in "drying" *is* OXIDIZED, in strict accordance with the orthodox and longstanding belief of the trade, as well as with the elaborate experiments of Chevreul,—*not* DEOXIDIZED, according to Mr. Binks's new but heterodox idea. His own idea of a *fermentation*, therefore, militates much rather against his own conclusion than in its favour.

* Wherein he complains that Mr. Binks did not refer to the series of articles in our pages on the drying of oils, which series he most erroneously terms an extract from his own lectures

"FROZEN OUT."—A SANITARY HINT.

WINTER will soon be coming upon us with much sharpness, and suggests some consideration which might be usefully attended to. When "John Frost" asserts his authority, the frozen-out gardeners and watercress-women are not the only sufferers, for in the large districts of the metropolis, hundreds of families who have at ordinary times a fair supply, are downright water starved; and thinly-clad women and children may be seen wending their way to some temporary plug, in the hope of getting a precarious supply. It is barely necessary to hint at the annoyance and inconvenience of being without this necessary of life under any circumstances; it becomes, however, in many instances, dangerous, when the ordinarily-constructed dwellings are occupied by several families, and become "frozen out."

Now, although it might not be at first thought so, it is certain that amongst populations which are thickly packed, and poor, the necessity of cleanliness (an object which cannot be attained without plenty of water) is as nearly as necessary for the health of both old and young as during the summer months; for during the hot weather people will, if the atmosphere become too close, open a door or window, or have a broken square unpapered up, or by some other means let in a little breath of air. But when winter comes the dwellings of the ignorant and poor, and also some of those who ought to know better, are regularly barricaded. It is true, that in some instances the greatest amount of industry and ingenuity, and the application of old hats, straw, and old newspapers pasting, &c. fail to the cracks and rents of some houses, which still remain, but which, however, are disappearing. In these instances the places are ventilated in spite of the tenants; and strange as it may seem, the actual improvement of dwellings, without attention to those sanitary rules which one might have hoped would have been by this time better understood, and more generally applied.

The writer of this has taken an opportunity of lately visiting some localities where the houses, new and smart outside, show condition internally to cause alarm. In some instances working men occupied three rooms, probably a couple of kitchens and place above. In summer time the numerous little children are separated and spread about; when cold weather comes, the mother fears that they will catch cold, and the beds of the whole are huddled into one room, the door of which, and also the window, is bound with leather or list, and in some instances the chimney is probably stopped up, and no means are allowed for the admission of the necessary element of health, life, and strength. There are generally other families in the same house, who adopt similar precautions against "Jack Frost" and the north-east winds, and then think cosily "that their doors are all closed and their windows all barred," and that the pinching enemy has been set at defiance, forgetting, or not thinking that they are raising in the garrison a more dangerous enemy than without the walls, which might readily, and would be, in some cases, certain to strike down old and young.

We mention this feeling, from personal observation that great necessity exists for doing so, and earnestly urge on our readers the necessity of cautious and common-sense arrangements, and to impress upon landlords the need there is for having all staircases, and as far as practicable the rooms of such houses as above referred to, vigorously ventilated.

To return, however, after this long digression to the "freezing out," no one will for a moment doubt, that in addition to the shutting out of the air and overcrowding, that the stopping of the water supply cannot fail to add to the evil: the washing-day is put off, and linen, &c. stored dirty in close closets, &c. and it becomes a matter of difficulty to get the children, floors, &c. attended to as usual. In ordinary health this is bad, but when sickness and death are in a house, the need of these remarks is more evident, and their truth will be recognized by many a district surveyor and London missionary.

It is doubtless very important to avoid being "frozen out," and yet it is extraordinary how little of the commonest precaution against a matter which causes the ill effects above alluded to, and also causes the stoppage of drains and water-closets.

Plans to prevent the blocking of the main and other water-pipes with ice, and all the expenses and inconvenience of these bursting, &c. have been already referred to in the *Builder*, and yet little or nothing practicable, so far as we are aware, has been done by the great water companies.

In the Model Building in Bloomsbury, the water is carried quite to the top of that build-

ing of five stories high, and along the outside walls, and yet we are told that during the years since this large place has been finished, the water supply has never failed, though nothing can be less costly and more simple than the means used to exhaust the pipes from all the water in frosty weather after the cisterns have been filled. This operation is performed by a tap, which, after the water has been turned off, allows all the liquid in the pipe to escape and this does not occupy the person having charge of the place a couple of minutes each time.

At Clark's-buildings, and some other houses belonging to the same association as that mentioned above, the pipes have been passed for very long distances above the exterior walls, but they have not been left without care; in part they have been covered with a cheap wrapping of a kind of felt, which, when necessary, is still further protected by a boxing, of about 3½ inches square, filled with sawdust; and this defence which, in ordinary houses, would cost only a very small sum, has been found quite effectual: even a twist band of straw would, in many instances, prevent the freezing out. It unfortunately happens, that in these houses, where precaution is most necessary, that one of the people say, "It's not my place to trouble myself with the water;" and then another says the same thing, and so what is important to all is left neglected. We think, however, that in houses which are let to various tenants, the water, which is as necessary as the daylight, should be protected by the persons who receive the rents. It is, however, not every one who knows how to set about this matter, and would venture to hint, that some ingenious men, who may be thrown out of employment by the hard weather, might pick up a crust by preventing the unpleasant effects of being "frozen out."

CHURCH-BUILDING NEWS.

Norwich.—The contract for benching the nave and aisles of St. Peter's Mancroft in oak, as in the chancel and its aisles, has been taken by Mr. Ringham, of Ipswich, at 555*l.* The tracery and carving will be done at a future period. Messrs. Morgan and Phipson are the architects.

Ingoldisthorpe.—The chancel of this church has recently been entirely pulled down and rebuilt. The tracery fronts to the seats are copied from the old, a small portion of which remained. A new roof has been added, with wall-pieces, shafts and bases resting upon carved stone corbels,—figures of St. Michael (the patron saint), the four evangelists, and angels. The windows are filled with green cathedral glass. The east one, of five lights, is to be filled with painted glass by O'Conner. An enriched sedilia in Caen stone has been fixed, having the emblems of the passion carved on shields in trefoils. The floor is laid with Staffordshire blue and red tiles; the portion within the altar rails of Minton tiles in various colours, arranged to a pattern. The works have been carried out by Mr. Brown, of Lynn, under the direction of Mr. G. E. Pritchett, of Bishop Stortford, at the cost of nearly 800*l.* exclusively defrayed by the Rev. W. Beckett. A rectory-house is in course of erection, at the cost of the same gentleman, who has also offered to contribute largely to the restoration of the nave of the church.

Oxford.—The restoration of the chancel of the church of St. Peter-in-the-East has recently been completed. The most serious defect for the architect (Mr. Buckler) to contend with, was the gaping fissure in the south wall, commencing at the floor, and passing through the Norman window, which was weakened many years since by being cut down nearly 2 feet through the thickness of the wall. The windows of the crypt, in course of the improvements, have been released on the outside from heaps of earth and masonry, which had injured the walls and obstructed the light. An arched aperture, for the admission of light immediately over the altar in the crypt, has been reopened. The restorations have been executed by Messrs. I. and W. Fisher, of Oxford.

Hayward's Heath.—The *Brighton Gazette* announces the opening of the new church at Hayward's Heath on Tuesday in last week. It is of the Early Decorated style, and was designed by Mr. G. F. Bodley, of Brighton. The general walls are of sandstone; the dressing of Scaynes Hill sandstone; and edgings of the windows and doors of Bath stone. The exterior roofing is of tile, and nearly equilateral in pitch, and the interior of rafters, of foreign deal, stained and varnished. The building was erected by Messrs. C. and E. Newnham, of Hayward's Heath, under the superintendence of Mr. Holloway, and, with interior fittings, cost from 1,100*l.* to 1,200*l.*

Swansea.—St. Peter's Chapel-of-Ease, the foundation stone of which was laid on Whit-Monday (12th May) last (and of which we gave a description at the time), was opened by the bishop of the diocese, on Monday in last week. The building has been erected by Mr. Joseph Richards, of this town, from the design, and under the superintendence of Mr. R. Kyrke Penson, of Swansea, architect. The total cost of the whole building, boundary walls, and entrance-gates, &c. amounts to about 1,500*l.*

Blaenau.—The new church at Aberystwith, has been opened. It stands on the site of the destroyed edifice, near the Blaenau works. The architect is Mr. John Norton. The style is pure Norman, and it is rigidly observed throughout the entire building. The plan comprises a nave, 53 feet by 22 feet 6 inches; north and south aisles, from the latter of which projects an entrance porch: a tower, which is 22 feet square, stands at the east nave, and forms an intersection of the transepts, by projecting from it north and south. The tower is 72 feet high from the ground, and it will be surmounted by a lofty spire of Bath stone (now in course of erection by Mr. Farmer, of London). The roofs throughout are open, the wood used being stained deal: they are lofty, and are externally covered with stone tiling. A centre chancel window was presented by the architect, the subject being the "Crucifixion." This window, with two others in the chancel, of stained glass, is by Bell, of Bristol. The west windows of the nave are of thick ornamental diapered glass, by Messrs. Powell. The stone which has been used is that from Llangattock quarries, and said to be hard and durable, requiring about three times as much labour in dressing as Bath stone; and the roof, apse, and chancel are domed with embossed stone. The church is capable of accommodating between 500 and 600 free. It is warmed by hot-water apparatus, erected by Messrs. Hayden, of Trowbridge. The estimated cost of the church was 4,000*l.*

Leek.—At a meeting of the Leek Improvement Commissioners, they con idered the minutes of the Cemetery Committee, who had received plans and estimates, for the laying out of the cemetery, from Mr. Davidson, of London, whose estimate was 680*l.* and 50*l.* for commission and journeys; or for a stone and railed wall north and south, instead of holly, 94*l.* in addition;—from Messrs. Lynam and Rickman, of Stoke, who had sent a model of the grounds as they proposed them: their estimate was 1,758*l* and a reduced estimate 1,340*l.* or, with catacombs, 1,900*l.*;—from Mr. Dale, the commissioners' surveyor, whose first estimate was 1,450*l.* and reduced estimate 1,087*l.* or, with park palisades for fence, 787*l.* The chairman also opened a letter from him containing a fourth estimate; but it was thought not right that he, having had access to the other estimates, should be permitted to alter his own according to the amount of the others. The minutes of the Cemetery Committee were approved, and the plans and estimate of Mr. Davidson adopted.

Barnsley.—The new Congregational Church here has been recently completed, and opened for divine service. The style of the building is Early Decorated. The front contains a four-light window, with a three-light on each side of it; the whole under one label moulding, and giving the appearance of a window with ten lights. Above them, and divided from them by an enriched string, is a circular window, contained in a spherical triangle, with columns, &c.; the gable finishing with an ornamental finial. The centre window, consisting of ten lights, is of stained glass, grisaille pattern, relieved with rich medallions of ornament; the whole surrounded by coloured borders. The side lights are similarly treated; also containing texts of Scripture. The tracery lights are filled with rich ornament of geometric design. The whole of the glass has been executed by Messrs. Pilkington, of St. Helens. At the front of the building are the tower and spire, attached to the main gable of the nave, and divided into four stages; the lowest having an elaborate doorway, surmounted by a crocketed pediment, terminating in a rich finial. The topmost stage is pierced with two windows of two lights each in either face, and the tower itself finished with canopied pinnacles, rising up from the angle buttresses at each corner. The spire springs from this, and, with the exception of two tiers of spire lights, is kept quite plain, depending more for effect on outline, than enriched detail. The height of the tower is 73 feet, and to the top of the vane on the spire, 167 feet.

Alnwick.—The consecration of the episcopal part of the new cemetery took place on Thursday in last week. The chapels are in the Gothic style, of thirteenth and fourteenth centuries, the episcopal being decorated. The cost of the chapels, gateway, and lodge was 300*l.* Mr. F. R. Wilson, resident architect of Alnwick Castle, was the architect; and Messrs. Armstrong and Hudspeth, the contractors.

INSTITUTION OF CIVIL ENGINEERS.

On the 16th the annual general meeting was held, Mr. G. P. Bidder, Vice-President, in the chair. In the report of the council for the past session, which was read, some few of the foreign works in progress were noticed; mentioning particularly the successful opening and the extension of the East-Indian Railway, under Mr. Rendel, the late distinguished Past-President of the Institution.

On the continent, gradual extensions of all the main lines were being made. The Lombardo-Venetian system had been transferred to a powerful company, now preparing to act with great energy in the prosecution of their plans. The Victor-Emmanuel" line, under the direction of Mr. Bartlett, M. Inst. C.E. acting for Mr. Brassey, Assoc. Inst. C.E. the contractor, was approaching the chain of the Alps, for the traversing of which preparations were being made, and experiments upon the machinery for the work of tunnelling on a large scale were being tried. That portion of the line from Aix-les-Bains, passing through Chambery to St. Jean de Maurienne, upwards of fifty-five miles in length, was opened for public traffic last October. The works were originally laid out by, and to a great extent executed under the direction of, Mr. Nieumann, who was succeeded last year by Mr. Ricceo, under whose supervision they were now carried on.

The statement of the receipts and expenditure showed that there was a balance of upwards of 700*l.* in the hands of the treasurer; and that the financial position was very satisfactory, so that not only would the current expenses be easily met, but a balance would remain to bring up any arrears of publication, or to provide for contingencies.

The following gentlemen were elected to fill the several offices on the Council for the ensuing year:—Robert Stephenson, M.P. President; G. P. Bidder, I. K. Brunel, J. Hawkshaw, and J. Locke, M.P. Vice-Presidents; W. G. Armstrong, J. Cubitt, J. E. Errington, J. Fowler, C. H. Gregory, T. Hawksley, J. R. McLean, J. S. Russell, J. Whitworth, and N. Wood, Members; and R. W. Kennard and Sir Macdonald Stephenson, Associates.

At the previous meeting, December 9th, a paper "On the Laws of the Strength of Wrought and Cast Iron," by Mr. William Bell, was read: to this we may look on another occasion.

Proposed Bridge across the Mersey.—At a recent meeting of the Liverpool Dock Committee, a communication was read from Mr. James Coey, describing a plan by him for improved approaches to the pier. He proposed to erect a bridge across the Mersey, of six spans of 521 feet each, and at a level above the pierhead of 125 feet, to connect the London and North Western Railway with the Chester and Birkenhead Railway, the rail on the Liverpool side of the river to be carried on to the top of a pile of granaries ending at Roscoe-street, where a tunnel could be formed to Edge-hill. Mr. Coey supplied no estimate of the cost.

THE PAST AND FUTURE OF PICTURE GALLERIES.

WHEN, towards the end of the seventeenth century, with other manifestations of languor and decay, the great *picture schools* of Italy dispersed and ceased to exist, pictures began to make their peregrinations; and thus, amongst others, the fine Venuses of Titian, Guido Reni, and Palma, came to Dresden. Before that time, there existed no picture galleries, to be so called; and there are yet voices rising against them, as not conducive to the advancement of art. Pictures, as every art-work, possess a character of *individuality;* and as no individual can adapt himself entirely to another, pictures also, congregated in the same place, combat, as it were, each other; and the general beholder often is seized with a sentiment of confusion and satiety, very antagonistic to art contemplation, and art enjoyment. There is certainly an arcanum against this mind's plethora, but it is resorted to but by few. It consists in singling out each time only one or two pictures, and to confine our contemplation to them.—Still, by what could picture galleries be replaced? A picture is a produce of the time and locality where it arose, and resembles in that respect a plant, which we cannot, without impunity, sever from its maternal soil. A picture, fancied in its analogous position, is quite another thing, then, if placed in a picture gallery. How many things are wanted here, which accompanied it there—explained it, completed it, and surrounded it with an historical glare; thus making it a whole of associations and sentiments. All this is wanting now. No race of men is more capricious than that of artists, and as capricious are their productions. To properly appreciate a picture—an art-work—we ought to know, where and when, and how it arose, how the artist lived and worked. This we can only know, by carrying back the picture to the place where it arose, and for which it was made (!); and here a variety of the tenderest emotions will burst on our mind. We will become aware, that *this* picture once adorned the high altar of some huge cathedral, the other the more modest refectory of a convent, mountain-girt, where the artist had received shelter, hospitality, solace; or that it was made for the banqueting-hall of some eminent man. In a gallery all those recollections are lost, and, with them, a great amount of the pleasantest associations of thought and reverie.

But as galleries *do* exist now-a-days, the question arises, according to what rules and principles are they to be classified and arranged? Generally speaking, pictures have been arranged in galleries *historically*, and there is some good in that sort of arrangement. But we may fancy another system of picture-arrangement in galleries, and this would be one according to the *subjects* treated and represented. Not all historical or ethic matter is of equal pregnancy and richness. There are, as it were, large historical market-halls, where painters obtain most richly their supply of subjects and ideas. Such is the period of the old Hebrew prophets and sages, the myth-time of ancient Greece, the period of old Roman republicanism and virtue, the beginnings of Christendom;—in fine, that marvel of history, the fifteenth, and partly sixteenth century, that age of men with great souls and minds. And then comes the different treating of such subjects. It is, for instance, exceedingly interesting to reflect, how differently the myth of Leda has been seized and represented by painters of the various art-schools and nationalities; how a French, a Spanish, a Venetian, or a Netherland painter will represent it. Equally striking is the representation of the Mother of Christ by various painters, from the dark banditti-bride of a Velasquez—the dry, consumptive old maid of Cravach, the fat, fair kitchenmaid of a Rubens, up to the ideal, luminous face of a Raffaelle, which has more of the angel than the woman! What diversity, what chaos of ideas and lineations in their different seizings of the same subject. Still, however plausible such an arrangement may appear in *theory*, it hardly would be carried out practically, at least not to any extent. But whatever *is* right in theory, *is* capable of being carried out, *at least* to some extent; and this has been done, of late, in the Dresden Gallery, by the isolation of a few such pictures as stand on the pinnacle of beauty and excellence! Thus, the incomparable Sixtus Madonna has been placed in a *separate* cabinet, and there are persons who, for a fortnight, day after day, come to pass an hour or two in nought but the contemplation of this great conception of the Urbinate. They are right!

PROVINCIAL NEWS.

Nottingham. — Besides the ninety model dwellings of three several kinds, erected by Messrs. C. C. and A. Dennett, under the supervision of Mr. J. S. Norris, architect, and which did not, it seems, solve the problem of providing improved dwellings for a numerous class with small means, Mr. C. Paget, M.P., and Mr. L. Heymann, according to the local *Guardian*, have had fifteen cottages erected in the neighbourhood of Robin Hood-street. On the ground-floor, says a writer who inspected them, are a living-room in front, with supply of gas, and a small kitchen at the back, both provided with ovens and boilers, and the latter having a sink-stone with water tap over. A coal place is constructed under the stairs, and a small pantry adjoins. Three good sleeping rooms are obtained above the ground-story, well lighted and ventilated; and each house has its own back-yard, with out-offices, &c. A back-entrance passage skirts the bottom of the yards, and communicates therewith; and in this is contained, under cover, a rain-water pump, with cistern underneath, for the joint use of the occupiers. The rent of each house is 3s 6d. per week (free from rates and taxes), which yields, although not a high, yet a fair return, for the capital invested. The houses externally have a substantial and attractive appearance, and are finished, both within and without, with an attention to various matters of detail, domestic convenience, and economy, not always found in dwellings of this class. The buildings were designed by, and executed under the supervision of, Mr. J. S. Norris, and the contracts have been executed respectively by Mr. James Acton, and Messrs. Dyer, Bell, and Wood, builders.

Hull.—St. Mary's (H.C.) Schools, Hull, are situated at the junction of Wilson-street and Dansom-lane, and consist of the school buildings and residence for the master. The school buildings comprise a school-room, 90 feet by 30 feet, with a class-room at each end of the school-room, 20 feet by 16 feet. The roofs of both school-room and class-room are open timbered, and are constructed of American red pine, wrought, stained, and varnished. The walls of these buildings are 18 feet high, but the roofs being open, and of high pitch, the school-room has a total height of 43 feet. The walls are constructed of brick, with red stock brick facings and stone dressings: they are 18 inches thick, and have buttresses between each window. The roof is covered with slate, and has a bell-cot rising from the ridge to a height of 16 feet. The floors are boarded. The building is heated by hot water, the pipes being laid round the whole of the building, and the heat admitted through ornamental grates laid in the floor. Fresh air is admitted from beneath the floor, the impure air being removed by eleven ventilators fixed in different parts of the building, in addition to the ventilation provided for in the bell-cott, or by means of an open fire-place. The schools being intended for both boys and girls, separate entrances are provided. The porches on the street front are 10 feet square: those on the north side, and opening into the play-ground, are 10 feet by 11 feet. The works have been executed by Hull tradesmen, as follows:—Mr. C. R. Morehead, bricklayer and plasterer; Mr. R. Wilson, mason; Messrs. Dawber and Son, slaters; Mr. T. Sissons, carpenter and joiner; Mr. Wm. Appleyard, plumber and glazier; Mr. Wm. Waroall, painter; Mr. J. Wilson, ironfounder and smith; Mr. R. Stones, gasfitter. The total cost of the building, inclusive of the land and fittings, will be about 2,600*l.* The buildings, which are in the Early English style, are from the designs, and have been erected under the superintendence, of Mr. D. Watson Aston, architect.

Liverpool.—The dock committee are said to have now under consideration a plan prepared by Mr. Hartley, the dock surveyor, for an immense graving-dock at the north-east end of Prince's Dock, on the site of the slate yards. The proposed dock will not at all interfere with the Prince's Dock basin, as the entrance to it will be through the north-east corner of Prince's Dock. The extreme length of the dock will be 700 feet, or large enough to accommodate three ships of 2,000 tons' burden.

THE NEW STREET THROUGH SOUTHWARK.

IT is notorious to all who travel through High-street, between St. George's Church and London-bridge, that the traffic is almost as often obstructed there as in the most crowded parts of the City; and it is obvious that the proposed new street opening into High-street, by relieving the bridge, will in the same ratio increase the number of vehicles in High-street.

To obviate this difficulty, I suggest that the traffic between the London-bridge railway stations and the new street should be carried over and cross High-street by means of a viaduct leading direct to the south-west point of the stations. By this plan the "circulation" of vehicles between the City and the Borough would be uninterrupted by the cross and confluent traffic which must pour into High-street by the new opening. VIATOR.

AN observation in your paper (page 678), beginning "New street in Southwark," shows something of your opinion of the proposed line, and of your intention to make some observation thereon hereafter. I cannot doubt but your sources of information on this subject are abundant; but still there may be some points laid before you, that I presume would more fully explain the requirements and convenience of the public in passing through this locality.

My daily intercourse with the inhabitants of St. Saviour and Christ Church parishes furnishes me with ample opportunities of knowing the opinion of the inhabitants on this subject. I have prepared a plan of a line differing materially from the proposed line. I deal with the High-street somewhat differently to the proposed line, but arrive at the east end of Castle-street, nearly at the same spot. From thence, instead of going to Stamford-street, I draw a straight line from the east end of Castle-street, to the Obelisk in the Waterloo-road, at the east end of the York-road. This is as near as may be a mile long. I propose this road to be 50 feet between the curbs, with two footways of 12 feet 6 inches each, making together 75 feet. This line would interfere with no large or very valuable property in its course, and would pass on the north side of St. John's Church, in the Waterloo-road, laying the side of the churchyard open to the south side of the road. This line, extended about 300 yards westward, would bring you to the foot of the Hungerford-bridge, and then—suppose at some future period a bridge over to Scotland-yard, and from thence by an easy curve to the front of the Nelson Monument—this would relieve Oxford-street, Holborn, the Strand, Fleet-street, and many of the streets in the City, and would be an easy route from any part lying west or north-west of Charing-cross, to the Dover or Brighton Railways, or any place east of London-bridge. J. H.

I DO not like any of the plans now proposed. If you place a ruler on the map of London from London-bridge or York-street to Westminster-bridge, you will find that it cuts south of Rowland Hill's Chapel and along the New-cut. It is in my opinion bad policy, and creative of great injustice to make new thoroughfares when existing ones can be made available by improvement. The public will always take the shortest road, and the shortest is the straightest. Make a curve if you please from York-street to Union-street, where the Southwark-bridge-road crosses it: widen Union-street to the Blackfriars-road. The New-cut is already a good wide road in the right direction as far as the Waterloo-road, where it turns to the left; but if it were continued straight to the foot of Westminster-bridge, you would have the shortest, best, most convenient, most honest, and the cheapest line that could be made. TOOLEY-STREET.

COMPETITIONS.

Tamworth Union.— Several competitors complain they can get no answer to letters on this matter. Perhaps the Board will inform us what has been done.

THE ALMANAC OF THE ART-UNION OF LONDON.—Amongst the many popular works of the Art-Union of London is their waistcoat pocket almanac, which, with room for engagements, gives information on artistic subjects, meetings of societies, &c. not to be found elsewhere. Every subscriber is, we believe, entitled to a copy.

RECENT AMERICAN PATENTS.*

For Improved Devices in Carving Wood. NELSON RUGER, West Farms, N. Y. *Claim.*—1. The cutters, in combination with the bars, having arms attached to them, the arms having bars pivoted or jointed to their outer ends, to which the cutters and tracer are attached. 2. The bar placed on a rod, which is attached horizontally to the vertical bar; the ends of the bar fitting between the arms.

For an Improvement in Vehicle for Paint Compounds. FREDERICK KULHMANN, Lille, France. *Claim.*—The admixture of silicate of alkaline substance with a paint, varnish, ink, or dye (instead of using it in layers or coatings, as heretofore done), using, for the protection of the several individual colouring matters, such agents as are known to scientific or practical chemists.

For an Improvement in Furniture Polish. JOHN L. BRABYN, City of New York. *Claim.*—The combination of muriatic and acetic acid with the usual ingredients of furniture polish, in the proportions and manner specified, for the purpose of producing a polish capable of resisting the action of hot or cold water.

For an Improved Clamp for Plumbers. F. R. LANGWITH, City of New York. *Claim.*—The combination and arrangement of the clamp box, the clamping levers (when either is used), and also, in combination therewith, the screws for adjusting the cock in a proper position during the process of soldering with the main pipe.

For an Improved Mortising Machine. THOMAS R. BAILEY, Lockport, New York. *Claim.*—The mandrel fitted in bearings attached to sliding-plates—one of the bearings being pivoted to the plate, and the other bearings allowed to slide on the other plate; the mandrel being vibrated laterally by the screw, worm-wheel, eccentric, pitman, and bent lever.

For an Improved Metal Pavement. SOLOMON B. ELLITHORP, City of New York. *Claim.*—A metal block for pavements, formed of a series of groined arches, alternating in position, and connected to ridge or string pieces, with interstices between the arches to be filled with cement, gravel, or sand.

For an Improvement in Bake-Ovens. JOHN P. HAYES, Philadelphia, Penn. *Claim.*—The heating flues, arranged so as to cause the products of combustion to pass from the fire-chamber below, first into the lower flue; thence behind its position, and out; thence, into the next flue above, and out; and so on through the successive flues which may be above, to the escape flue; the said flues being arranged on the two sides of the casing, and divided by the partition, and the products of combustion being directed thereby; together with the partition plates in the wall.

For an Improvement in Brick Machines. HENRY B. RAMSAY, Indianapolis, Ind. *Claim.*—1st. The wheel, cranks, and catches, in combination with the springs, for the purpose of regulating the stroke of the knives for cutting the clay at the top of the moulds. 2nd. The sliding mould table, for the purpose of raising the moulds to the grate under the clay-box.

For an Improvement in Brick Machines. ISAAC HARMAN, assignor to self, and WILLIAM BICKEL, Tamaqua, Pennsylvania. *Claim.*—The moulds, composed of the two halves having any convenient number of angular projections and recesses, the points of the angular projections of one-half coinciding with those of the other half, the said moulds being caused to expand and contract.

For an Improvement in Machines for Sawing Stone in Taper Form. H. J. BEHRENS, City of New York. *Claim.*—Giving to a saw, placed in a line inclined to the line of motion of the saw-frame, a lateral motion independent of the motion of the frame, or at right angles to the line of motion thereof.

Books Received.

WE are forced to postpone notice of a number of books which have been before us for some time;—Dr. Smith's "Classical Geography" (an admirable work); a new edition of Bayldon on Rents and Tillages; Mr. Cross's useful little volume, "Landed Property,—its Sale, Purchase, Improvement, and general Management;" the seventh part of "The Dictionary of Architecture;" a new edition of Mr. Howitt's "Visits to Remarkable Places;" "The Early Flemish Painters," by Messrs. Crowe and Cavalcaselle; a new edition of "The Cabinet Lawyer," to enable every man, as Bacon wished, to know as much law as will enable him to keep himself out of it; and various others. To some of these we shall give early attention in our new volume.

* Gleaned from the numerous lists in the "Journal of the Franklin Institute" of Pennsylvania.

Miscellanea.

BISHOP MONUMENT.—At a meeting of the committee appointed to erect a suitable memorial over the grave of Sir Henry Bishop, held recently, it was resolved, "That the next meeting of the committee be summoned as soon after the 31st instant as may be found convenient, and that designs for the monument be then submitted for the consideration of the committee."

LIVERPOOL ARCHITECTURAL SOCIETY. — At a meeting of this society held on Wednesday evening, the 10th, Mr. E. H. Strype read a paper—"On the Study of Mathematics as applied to Architecture." Mr. Horner said, he fully appreciated the desirability of a division of labour as distinguished from generalisation, and added that the immense space over which science was spread was such, that each man could only grasp the surface, rather than go to any great depth. With regard to the relative position of architects and engineers in reference to scientific knowledge, he thought mathematics was too much neglected by architects, and they were much indebted to engineers for the admirable tables by which their labours were shortened in mathematical calculations.

SALE OF FARM IN ESSEX.—The name of Mr. John Tucker is familiar to some of our readers as an exhibitor of fat stock for many years past, at the metropolitan and provincial cattle shows. His farm-homestead, at West Ham Abbey, Essex, is said to be one of the most complete. It was sold by auction, by Messrs. Baker and Son, at the Auction Mart, during the past month; Messrs. T. Geere and Son, of Stratford, Essex, timber-merchants, being the purchasers for 3,200*l.* exclusive of the fixtures, which are estimated at 500*l.* more, making a total of 3,700*l.* which we are told, but cannot answer for it, is less than one-fifth of the sum originally spent upon it by Mr. Tucker.

FATAL ACCIDENT AT WORCESTER CATHEDRAL.—In course of procedure with the extensive works being carried on for the purpose of strengthening and restoring the edifice, an accident happened last week, being the second fatal occurrence at the cathedral within a few weeks. Three workmen on the south transept had raised a scaffolding to a height of 45 feet, and were occupied in raising it still higher: short poles had been fixed into the wall, and upon it were rested a number of planks forming the scaffolding: the men were at work upon this scaffolding when one of the supporting poles suddenly broke, and the poor fellows fell to the ground, the planks and other timbers falling upon them. One of them received fatal injuries (of which he died an hour or two after); another, a concussion of the brain and a broken leg and shoulder; and the third also suffered serious injuries.

HATHEROP HOUSE.—We have been requested to say, with reference to the particulars we gave of this building, that it has been restored and enlarged, and not entirely rebuilt, and that, in addition to the sum named, 20,000*l.* a very large amount has been spent, and much work yet remains to be done. The amount stated, it appears, surprised some who happened to know that the sum of 20,000*l.* of trust money had been provided, and that private money to a considerable amount had been expended. The architect of the building, nevertheless, confirms the correctness of the statement in our pages that the sum spent under his supervision upon the building amounted to about 20,000*l.*

DRAINAGE-TENDERS, BURY ST. EDMUND'S.—At a meeting of the local commissioners last week, a motion for opening the tenders for a portion of the main sewer, with a view to carrying the work thus far into execution, was carried by a majority of ten to four against a motion for delay till funds were provided, as suggested at a meeting of ratepayers previously held. The tenders being opened, were found to be as follows:—

Jos. Dierden, Barnsbury	£679
Edw. Pilbrow, Bedford-square [Reduced 50*l.* by a subsequent letter, if no extra pumping required.]	507
Thos. Docwra, Waltham Cross	420
Andrew Pretsell, London	420
Edward Thirst, Chelsea	409
H. Frost, Bury	350
Wm. Rednall, Bury	340
John Brewster, Bury	320
Thomas Farrow, Bury	279

Mr. Farrow's tender was accepted. It was agreed that Mr. Croft should act as surveyor, at 2*l.* 10*s.* per week, for six weeks. Mr. Burnell stated that in his estimate of 6,000*l.* for the projected works, he had allowed 2,000*l.* for the deodorizing process; and if Mr. Walker should succeed in his undertaking to deodorize the sewage of Rugby at his own charge, a large deduction might be made on this account; but as yet the process had not succeeded commercially, though it had in a sanitary point of view.

RELICS FROM THE CRIMEA IN THE BRITISH MUSEUM.—Some antiquities of very great interest have been added to the national collection in the British Museum. These relics from battle-fields of the Crimea consist of Greek, Roman, and Saxon remains, found at Sebastopol, Kertch, and the adjoining neighbourhoods. Amongst those of Grecian date are vases of various shapes, material, and colour; sculptured figures, and fragments of tombs: the latter consist of carved flowered ornaments in wood, richly gilt, and elaborate cuttings in ivory, wall paintings (the tints very beautiful, particularly some of deep purple and red); there are also nails of coffins, fragments of dresses, &c.; the twined brass wires from garlands of flowers, &c. In the Roman part of this collection are numerous vessels of glass, of different sizes and shapes. One contains gold, and some of the others ashes, &c.; there are also broaches and other personal ornaments of gold, bronze, &c. The objects which have perhaps the greatest amount of interest to us are some antiquities of Anglo-Saxon date and workmanship, which show that in remote times, after the days of Greece and Rome, our ancestors had habitations on the same spots which have been occupied by our warriors during the recent war. Few can look upon these relics, which have been brought from a place which has on so many occasions and under such different circumstances been made a battle-ground, without feelings of interest. Not far from the Crimean antiquities are some painted bricks and other architectural fragments from Nineveh. We may mention, that great progress has been made in the arrangement of the gallery of Roman bronzes, terra-cotta, and other works.

WESTMINSTER-BRIDGE.—I heartily thank you for the able article on the present state of Westminster-bridge. You say, why not proceed with the works at once?—why all this dawdling, sickening delay? Ah! why, indeed? says every one else who thinks at all about the matter; and I verily believe that if something is not speedily done, the old bridge will soon settle the question, and tumble into the Thames altogether, for it is fearful to behold its very insecure state. That other bridges are necessary, I entirely concur with you in thinking; but can a better site for one be chosen than the present old bridge? If a good reason existed for building one here one hundred years since, surely a far weightier reason exists now. And there is one thing, sir, you have not dwelt sufficiently upon, and that is, the condition of the unfortunate inhabitants at either end of the bridge. It reminds one of the fable of the boys and frogs: it may be fine sport to some, but here are we in a state of miserable anxiety and suspense, not knowing what to be at—with the greatest difficulty in letting apartments, or doing any good whatever, as every one is aware that the property in Bridge-street in particular will be required for the approaches. The very sound of this bridge is sickening: thirty years hatching and cobbling, Parliamentary committees and reports, bridge-doctors and heavy fees paid for professional services and advice—and what is the result?—the river scarcely navigable for a mud-barge at this spot, the three centre arches entirely blocked up, and a calamity almost imminent.—N. W. H. ROWE.

TENDERS

For fitting-up offices in Fish-lane, for the London Discount Company. Mr. Edmund Woodthorpe, architect. Quantities supplied by Mr. James H. Fox:—

Myers	£1,400	0	0
Browne and Co.	1,290	0	0
Sergeant	1,280	0	0
Ashby and Sons	1,264	0	0
Brass	1,228	0	0

For the erection of two warehouses in Old Change, for Mr. G. Andrews. Messrs. Tillott and Chamberlain, architects. The quantities supplied:—

Myers	£4,650	0	0
Brass and Son	4,596	0	0
Holland and Co.	4,397	0	0
Brown and Co.	4,080	0	0
Lindsay	4,080	0	0
Jay	3,993	0	0
Wallbutton	3,984	0	0
Ryder (accepted)	3,980	0	0

TO CORRESPONDENTS.

The Westminster Clock.—We have received a letter from Mr. Denison, in reply to a communication in our last, and will print it in our next. Several other correspondents must also excuse us for a time.

"J. P." (will be looked to).—"Colonel M."—"Messrs. G. and Sons."—"J. G."—"J. C. S."—"C. A. H."—"S. S."—"G. S."—"G. A."—"J. B."—"J. H."—"E. G. P."—"E. B. D."—"An Architect."—"R. P."—"G. C."—"T. F. O."—"Poole Pottery."—"A District Surveyor" (next week).—"E. W. T."—"J. K. C."—"T. and Sons" (under our amount).—"One whose Design was sent to Coventry"—"The Shade of Cocker."—"J. M. P."—"Col. M."—"G. E."—"M. O. M." (should look to papers mentioned in our present number).—"Mr. W."—"H. W." (we are forced to decline).

"*Books and Addresses.*"—We are forced to decline pointing out books or finding addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and not to the Publisher.

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